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COMPLICATIONS AFTER THE OPERATION OF ARTHROSCOPIC PARTIAL MENISCECTOMY; A SINGLE CENTER STUDY

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ARTICLE INFO **ABSTRACT** **ORIGINAL RESEARCH ARTICLE**

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Background: Arthroscopic partial meniscectomy is one of the most frequent orthopedic strategies in the world. The knee is one of the most frequently injured joint because of its anatomical position and structure, its exposure to external forces and the functional demands. Evidence from clinical trials has raised questions about the effectiveness of this method in some patient groups. Regarding the practical overuse issue, we wanted to demonstrate the real risk of complication after arthroscopic partial meniscectomy. **Objectives**: The aim of this study is to assess the Complications after the operation of Arthroscopic partial meniscectomy in a single center. **Methods** This is a prospective interventional study. The study used to be carried out in the admitted patient's in department of Orthopedic, National Institute of Traumatology and Orthopedic Rehabilitation (NITOR) Sher-E-Bangla Nagar, Dhaka, Bangladesh in the period from January 2013 to December 2014. **Results:** This study shows excellent post-operative result in 80% of patients, good in 12% and fair in the remaining 08% patients. Total 25 patients aged 16 to 40 years where, according to gender 80% were male, 20% were female. This study found the complications of Infection, Swelling, Stiffness and Instability were 0(0%), 1(04%), 0(0%) and 0(0%) respectfully. **Conclusions:** The effectiveness of arthroscopic partial meniscectomy, an appreciation of relative risks is crucial for patients and clinicians. The estimated prevalence of complications after arthroscopic knee surgery varies widely. Our data provide a basis for decision making and consent.

INTRODUCTION

Meniscal tears are frequent however related with quite variable knee symptoms, signs, and radiological findings. [1, 2] Many meniscal tears are asymptomatic, and knee signs can regularly be attributed to different pathologies, such as osteoarthritis. [3-5] When a meniscal tear is judged to be the reason of symptoms, surgical therapy to excise the unstable meniscal tissue—arthroscopic partial meniscectomy—is regularly recommended, and is one of the most frequent orthopedic surgical strategies worldwide. [6, 7] However, after the publication of the consequences of various randomized managed medical trials, the effectiveness of arthroscopic partial meniscectomy has been debated.[8] In view of concerns that the process would possibly be overused, a key concern is the incidence of rare however serious complications. [9-12]

Estimates of the frequency of problems after arthroscopic knee surgical procedure fluctuate widely, and previous research have had numerous limitations. [13] In many studies, the cohorts comprised a combination of patients who underwent most important approaches with combined open techniques, such as ligament reconstruction, and those who underwent much less invasive and only arthroscopic procedures, such as arthroscopic partial meniscectomy (appendix). [14] Studies have additionally often been restricted by means of small population or a reliance upon regional or insurance company databases, which may want to under-represent the real frequency of complications. The center of attention of various research was once venous thromboembolic issues or infection only, and comparisons between studies are difficult due to the fact of variations in populations, age groups, health systems, insurance plan providers, statistics sources, data collection, coding, and methods. There has been extended scrutiny of the requirement for individualized patient consent to bear surgical treatment or some other invasive procedure. [15] Estimation of an individual's attributable hazard from present process a procedure, as a substitute than the unadjusted absolute risk, is crucial, and previous research have been unable to calculate this necessary records due to the fact of the absence of contrast to normal populace data.

We aimed to comprehensively analyze complications related with present process remoted arthroscopic partial meniscectomy primarily based on the National Health Service (NHS) and Office for National Statistics (ONS) databases for England. When statistics had been available, evaluation was once made to the danger of destructive activities such as mortality, pulmonary embolism, myocardial infarction and stroke in the popular population, to information patients and clinicians about the relative threat of present process the procedure.

METHODS

This is a prospective interventional study. The study was conducted among the patients who had been hospitalized in The National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR), Sher-E-Bangla Nagar, Dhaka, from January 2013 to December 2014, in Bangladesh. The study carried out on 25 patients to learn more about the population, which included male and female patients over the age of 16. The general surgeon, Orthopedics surgeon and Physiotherapist, were primarily involved in the decision-making process. The patient made the treatment decision following a thorough discussion with the multidisciplinary team, which included general surgeon, Orthopedics surgeon and Physiotherapist.

The data for this study was gathered from radiographs and medical records of the patients. A window-based computer program created with Statistical Packages for Social Sciences was utilized to obtain statistical analysis of the results (SPSS-24)

RESULTS

Figure-I: Distribution of patients by age (n=25)

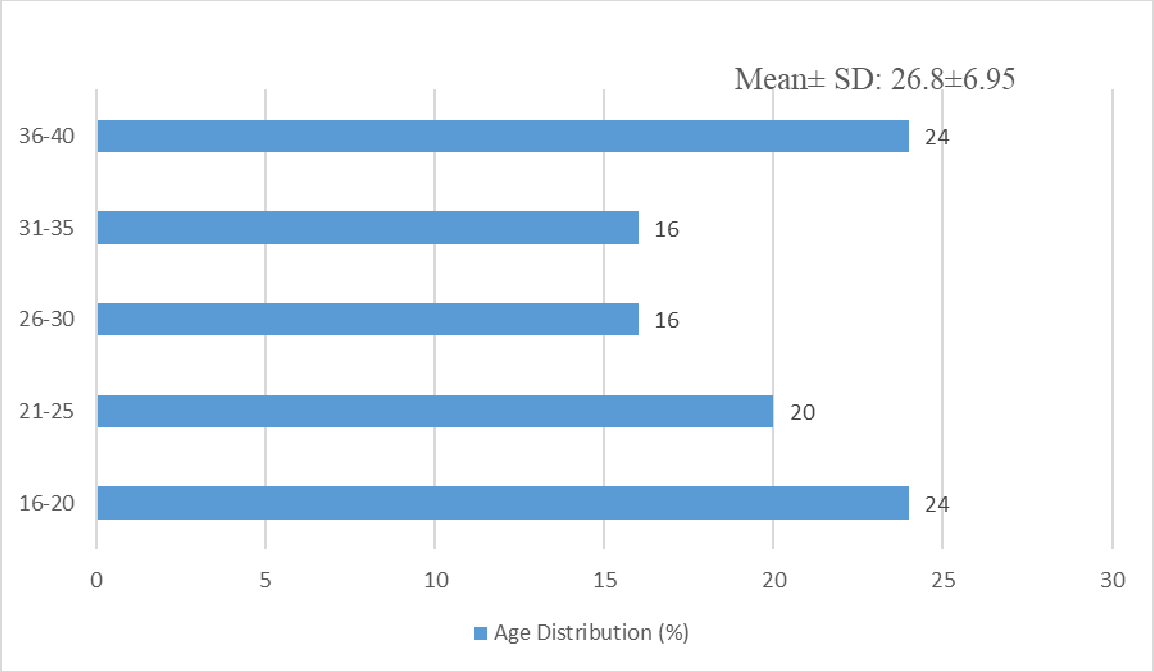

Figure I demonstrated and distribution of the study of 25 patients aged 16 to 40 years. Here according to age distribution, 6(24%) were 16-20 years, 5(20%) were 21-25 years, 4(16%) were 26-30 years, 4(16%) were 31-35 years and 6(24%) were 36-40 years.

Table-I: Incidence of the meniscus injury (n=25)

Meniscus involvement	No. of patients	Percentage
Medial meniscus ht Knee	13	52
Lateral meniscus	12	48
Total	25	100

Table I demonstrated the Incidence of the meniscus injury (n=25). According to meniscus involvement medial meniscus were 13(52%) and lateral meniscus 12(48%) respectfully.

Table-II: Distribution according to number of meniscus injury of the knee (n=25)

Number of meniscus injury	**Number of patients**	**Percentage**
One meniscus injury (medial or lateral)	15	66
Both menisci injury	10	40
Total	25	100

Table IV demonstrated the distribution according to number of meniscus injury of the knee (n=25). According to Number of meniscus injury the one meniscus injury were 15(60%) and both menisci injury 10(40%).

Table-III: Distribution by the type of meniscus injury of the knee (n=25)

Types of meniscus injury	Number of patients	Percentage
Bucket handle tear	6	24
Radial (transverse) tear	8	32
Tongue shaped flap	7	28
Combined tear	4	16
Total	25	100

Table V demonstrated the distribution by the type of meniscus injury of the knee (n=25). According to types of meniscus injury of Bucket handle tear, Radial (transverse) tear, Tongue shaped flap and Combined tear were 6(24%), 8(32%), 7(28%) and 4(16%) respectfully.

Table-IV: Postoperative complications (n=25)

Complications	Number of patients	Percentage
Infection	0	0
Swelling (huge)	1	4
Stiffness (due to pain and swelling)	24	96
Instability	0	0
Osteo-chondral injury	0	0
Neuro-vascular complications	0	0
Cardio-vascular complications	0	0
Pulmonary complications	0	0
Portal discharge	0	0
Total	25	100

Table IV demonstrated the postoperative complications (n=25). Complications of Swelling (huge) and Stiffness (due to pain and swelling) were 1(4%) and 24 (96%) correspondingly but Infection, Instability, Osteo-chondral injury, Neuro-vascular complications, Cardio-vascular complications, Pulmonary complications and Portal discharge were nil

Table V: Complications after six weeks (During follow-up)

Complications	Number of patients	Percentage
Infection	0	0
Swelling (huge)	1	4
Stiffness (due to pain and swelling)	2	8
Instability	0	0
Osteo-chondral injury	0	0
Neuro-vascular complications	0	0
Cardio-vascular complications	0	0
Pulmonary complications	0	0
Portal discharge	0	0

Table V demonstrated the postoperative complications (n=25) after 6 weeks of outdoor follow-up. All the patients showed significant improvement except swelling in 1 (4%) patient and Stiffness (due to pain and swelling) was in 2(8%) patients.

Figure2 Distribution of percentage of the patients by final outcome:

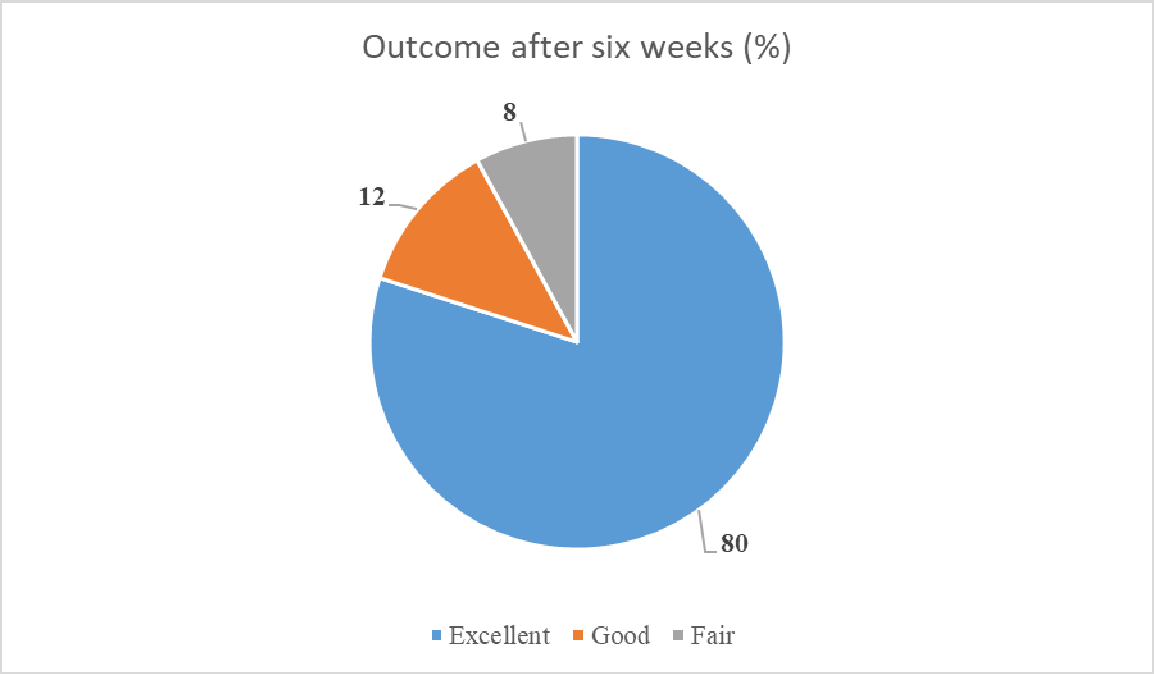

Figure-II: Pie chart showing distribution of patients by outcome (n=25)

This pie chart describes the distribution of post-operative outcome. Excellent result was found in 68 % patients, good result was found in 24% and the rest 08% had fair outcome.

DISCUSSION

As a necessary structure in the knee joint, meniscus is an intra-articular filler, which can expand the contact surface between femur and tibia, as a result enhancing the steadiness of the knee joint, successfully conducting the pressure load, and assuaging shock. [16] The majority of meniscal accidents in younger adults are prompted by way of direct or oblique violence. Meniscus accidents in middle-aged and elderly patients are frequently associated to meniscus degeneration. [17] In the direction of arthroscopic treatment of knee meniscus injury, we located that some patients with combined partial medial meniscus posterior horn damage and lateral meniscus anterior horn damage had been without problems overlooked earlier than operation. For such patients, not identifying and treating them in time will critically have an effect on the recuperation of knee function. Currently, there are rare reports on such injuries. For this reason, we reviewed the medical information of these 25 patients and summarized the results. The mechanism of damage and the impact of arthroscopic therapy may also supply a reference for medical analysis and treatment for concurrent medial meniscus posterior horn and lateral meniscus anterior horn injury. In our study, demonstrated and distribution of 25 patients aged 16 to 40 years. Here according to age distribution, 6(24%) were 16-20 years, 5(20%) were 21-25 years, 4(16%) were 26-30 years, 4(16%) were 31-35 years and 6(24%) were 36-40 years. According to gender 80% were male, 20% were female.

The present study reviews the profitable treatment of 25 instances of combined posterior horn harm of the medial meniscus and anterior horn damage of the lateral meniscus. It must be mentioned that most of these combined accidents are induced with the aid of chronic strain. Meniscus harm is the most frequent damage of the knee joint, which commonly happens in contact movement. [18] Nagura et al. [19] confirmed that the strain in the posterior knee in excessive flexion is 58.3% – 67.8% higher than that of walking, and power excessive extension ought to effortlessly injure

the meniscus. In Asian countries, people frequently kneel down, squat, and take a seat with legs crossed, ensuing in knee flexion >120° 18[20] and as excessive as 157 to 165° 19. [21, 22] Only three instances in our collection had a clear records of ankle sprain whilst the purpose of meniscus tear in the majority of the cohort is unknown. We speculate that squatting or sitting with legs crossed would possibly be a contributor to meniscus injury, however scientific proof is required to help this hypothesis.

In our study, demonstrated the Incidence of the meniscus injury (n=25). According to meniscus involvement medial meniscus were 13(52%) and lateral meniscus 12(48%) respectfully. According to Number of meniscus injury the one meniscus injury were 15(60%) and both menisci injury 10(40%). Based on types of meniscus injury of Bucket handle tear, Radial (transverse) tear, Tongue shaped flap and Combined tear were 6(24%), 8(32%), 7(28%) and 4(16%) respectfully. In medial meniscus posterior horn harm combined with anterior meniscus injury, the harm of the posterior horn of the medial meniscus may also cause biomechanical modifications of the knee joint, and end result in harm of the lateral meniscus anterior horn. [23] Huang et al. [24] confirmed that after unilateral meniscus resection, the axial load of the contralateral meniscus and the most equal stress on the surface of the meniscus all increased. Allaire et al. [25] studied the biomechanical modifications after posterior horn damage of the medial meniscus and confirmed that medial meniscus posterior horn damage had outcomes comparable to meniscectomy in phrases of knee joint stress and movement mechanics, not only inflicting the medial meniscus most response however additionally a make bigger in the most stress of the lateral meniscus as properly as an expand in pressure and contact area. At the identical time, there are a sequence of biomechanical modifications such as tibial ahead and outward movement, amplify of the exterior rotation perspective of the tibia, and the varus of the knee joint. [26]

Excellent result was found in 80% patients, good result was found in 12% and the rest 08% had fair outcome.

This study found the complications of Swelling (huge) and Stiffness (due to pain and swelling) were 1(4%) and 24 (96%) correspondingly but Infection, Instability, Osteo-chondral injury, Neuro-vascular complications, Cardio-vascular complications, Pulmonary complications and Portal discharge were nil. In follow-up after 6 weeks all the patients showed significant improvement except swelling in 1 (4%) and Stiffness (due to pain and swelling) was in 2(8%). At present, the accuracy of MRI analysis of meniscus damage is 80% to 100%, however few small tears are without problems missed. Choi et al [27] and Shepard et al. [28] believed that anterior meniscus tear was once hard to diagnose on MRI. De Smet et al. [29] confirmed that the sensitivity of MRI in the analysis of lateral meniscus tear used to be only 81%. A meta-analysis via Oei et al. [30] revealed that the sensitivity of MRI used to be only 79.3% in the analysis of lateral meniscus. All of these research advocate that some instances of meniscus tear might also be ignored by means of preoperative MRI. Anterior horn harm of the lateral meniscus was once overlooked in six patients in our sequence via preoperative MRI. Preoperative knee joint examination needs to be carried out in detail, and high-resolution MRI ought to be used to expand the sensitivity of preoperative MRI, which will useful resource intraoperative arthroscopic surgical operation in high-quality exploration of the suprapatellar bursa, patellofemoral joint, femoral trochlea, meniscus, cruciate ligament, and medial and lateral compartment constructions when the posterior horn of the medial meniscus is injured. The meniscus has a sure self-healing ability, and Petersen et al. [31] exhibit that the recuperation rate of easy meniscus tear is 50–75% with suturing in the red region and the red-white

zone. The anterior horn harm of the lateral meniscus in our collection used to be placed in the red zone and the red-white zone. The anterior horn was once now not resected and was once repaired by way of suture. The knee joint recreation of the patients recovered properly after operation, with an accurate to notable fee of 91.67%.

CONCLUSION

Overall, the risks correspondent with arthroscopic partial meniscectomy are low. However, some rare but severe complications are associated with this procedure, and the risks have not fallen with time. The estimated frequency of complications after arthroscopic knee surgery varies widely. For low-risk interventions, complication rates compared to the general population should be taken into account. This comparison is important to let know patients and physicians of the relative risks of arthroscopic partial meniscectomy. With further analysis of complication data and surgeon profiles, protective approach can be identified in more detail to help diminish complication rates in arthroscopic surgery.

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