A study of arthroscopy in diagnosis and management of knee joint pathologies at tertiary health care center

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Abstract

Background: Out of all patients Approximately 28% of patients orthopedic OPD with complaints of knee pain. Aims and Objectives: To study arthroscopy in diagnosis and management of knee joint pathologies at tertiary health care center. Methodology: This was a cross-sectional study carried out in the orthopedic department of a tertiary health care centre during the one year period i.e. June 2017 to July 2018. In the one year period there were 80 patients with symptoms of Knee joint were assessed at the department with the written and explained consent were enrolled to study. The outcomes of the treatment were assessed at the end of 6 week. The statistical analysis was done by Chi-square test and calculated by SPSS 19 version. Results: The majority of the patients were in the age group of >60 were 29.63%, followed by 50-60 were 25.93%, 40-50 were 20.99%, 30-40 were 16.05%, 20-30 were 6.17%. The majority of the patients were Male i.e. 55.56% and female were 43.21%. Common findings under MRI, Joint effusion in 90% followed by ACL tear in 74%, Medial meniscus injury in 67%, PCL tear in 55%, most common arthroscopic findings were ACL tear in 86% followed by Joint effusion in 84%, our study the proportion of the patients with excellent outcome were 32.50% for arthroscopy groups where as for Non-arthroscopic group was 5.00%, Satisfactory were 52.50% Vs 37.50%; Non satisfactory were 15.00% Vs 57.50% this observed difference in outcome of both the group was statistically significant (X^2 =19.03,df=2,p<0.0001). Conclusion : It can be concluded from our study that the majority of the patients were age more than 60 the most common findings under MRI and Arthroscopy were Joint effusion followed by ACL tear and ACL tear , Joint effusion the results of Arthroscopic treatment were superior as compared to non arthroscopic way of treatment hence Arthroscopy is very valuable in the diagnosis and treatment of Knee pathologies.

Key words: arthroscopy, Cruciate ligaments tears, Knee pathologies, MRI.

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INTRODUCTION

Out of all patients Approximately 28% of patients orthopedic OPD with complaints of knee pain. ^{1,2} The various etiologies are implicated like trauma, degenerative

joint conditions, infections, inflammatory conditions, and congenital lesions. ³ These conditions can be diagnosed by MRI or Arthroscopy and arthroscopy as dual role in the diagnosis and treatment, So we have studied arthroscopy in diagnosis and management of knee joint pathologies at tertiary health care center.

METHODOLOGY

This was a cross-sectional study carried out in the orthopedic department of a tertiary health care centre during the one year period i.e. June 2017 to July 2018. In the one year period there were 80 patients with symptoms of Knee joint were assessed at the department with the written and explained consent were enrolled to study. Out of these 80; 40 patients were diagnosed by MRI and treated

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by Non –arthroscopic way and 40 patient were diagnosed and managed by Arthroscopic way. This arthroscopic treatment was done by all aseptic precautions and with all standard protocols. The outcomes of the treatment were assessed at the end of 6 week. The statistical analysis was done by Chi –square test and calculated by SPSS 19 version.

RESULT

Table 1: Distribution of the patients as per the age

Age	No.	Percentage (%)
20-30	5	6.17
30-40	13	16.05
40-50	17	20.99
50-60	21	25.93
>60	24	29.63
Total	80	98.77

The majority of the patients were in the age group of >60 were 29.63%, followed by 50-60 were 25.93%, 40-50 were 20.99%, 30-40 were 16.05%, 20-30 were 6.17%.

Table 2: Distribution of the p	patients as	per the sex
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Sex	No.	Percentage (%)
Male	45	55.56
Female	35	43.21
Total	80	100.00

The majority of the patients were Male i.e. 55.56% and female were 43.21%

Table 3: Distribution of the patients as per the common findings under MRI

Findings	No.	Percentage (%)
Joint effusion	36	90%
ACL tear	30	74%
Medial meniscus injury	27	67%
PCL tear	22	55%
Lateral meniscus tear	18	45%
Medial collateral ligament injury	14	34%
Lateral collateral ligament injury	11	28%
Composite injury	5	12%
Fractures	2	5%
Composite injury Fractures	5 2	28% 12% 5%

(*More than one findings were found in one patients so total may be more than 40)

common findings of MRI were Joint effusion in 90% followed by ACL tear in 74%, Medial meniscus injury in 67%, PCL tear in 55%, Lateral meniscus tear in 45%, Medial collateral ligament injury -34%

, Lateral collateral ligament injury-28%, Composite injury -12%, Fractures - 5%.

Table 4: Distribution of	the patients as p	per the arthroscopic
	findings	

Thronigs					
Findings	No.	Percentage (%)			
ACL tear	35	86%			
Joint effusion	34	84%			
Medial meniscus injury	31	78%			
PCL tear	29	73%			
Loose bodies in joint	28	69%			
Medial collateral ligament injury	25	62%			
Fractures	22	56%			
Lateral collateral injury	18	45%			

. (*More than one findings were found in one patients so total may be more than 40)

The most common arthroscopic findings were ACL tear in 86% followed by Joint effusion in 84%. Medial meniscus injury in 78%, PCL tear in 73%, Loose bodies in joint in 69%, Medial collateral ligament injury in 62%, Fractures in 56%, Lateral collateral injury in 45%.

Table 4	4:	Distributio	on of	the	patients	as pei	the	outcon	ne	of

	management					
Outcomo		Arthroscopy	Non-arthroscopic			
	Outcome	management	management			
Excellent		13(32.50)	2(5.00)			
	Satisfactory	21(52.50)	15(37.50)			
	Non satisfactory	6(15.00)	23(57.50)			
Total		40(100)	40(100)			
(X²=1 9.03,df=2,p<0.0001)						

In our study the proportion of the patients with excellent outcome were 32.50% for arthroscopy groups where as for Non-arthroscopic group was 5.00%, Satisfactory were 52.50% Vs 37.50%; Non satisfactory were 15.00% Vs 57.50% this observed difference in outcome of both the group was statistically significant (X²=19.03,df=2,p<0.0001).

DISCUSSION

In the diagnosis of the lesion in the knee, the surgeon has to obtain a thorough clinical history, examine the patient, and do investigations as may be required. Arthroscopy is regarded as the gold standard among the investigative modalities. ^{4,5,6,7} The commonly missed diagnoses in the knee are osteochondral fractures, partial anterior cruciate ligament (ACL) tears, and loose bodies.⁸ Failure to recognize these has both medical and socioeconomic complications. The common medical complications include an unstable knee, chronic knee pain, and post traumatic arthritis. 9,10 The socioeconomic complications include loss of working hours during the treatment, high cost of medical care for procedures such as total knee arthroplasties and a perception of general poor health.¹¹ Arthroscopy (also called arthroscopic or keyhole surgery) is a minimally invasive surgical procedure on a joint in which an examination and sometimes treatment of damage

is performed using an arthroscope, an endoscope that is inserted into the joint through a small incision. Arthroscopic procedures can be performed during ACL reconstruction. The advantage over traditional open surgery is that the joint does not have to be opened up fully. For knee arthroscopy only two small incisions are made, one for the arthroscope and one for the surgical instruments to be used in the knee cavity. This reduces recovery time and may increase the rate of success due to less trauma to the connective tissue. It has gained popularity due to evidence of faster recovery times with less scarring, because of the smaller incisions. Irrigation fluid (most commonly 'normal' saline) is used to distend the joint and make a surgical space. The surgical instruments are smaller than traditional instruments. Surgeons view the joint area on a video monitor, and can diagnose and repair torn joint tissue, such as ligaments. It is technically possible to do an arthroscopic examination of almost every joint, but is most commonly used for the knee, shoulder, elbow, wrist, ankle, foot, and hip.¹² The most significant advances in imaging of the knee has been made in the realm of magnetic resonance imaging, which has clearly emerged as a primary tool in evaluation and guiding the management of internal derangements of knee. With the development of newer sequences with improved SNR, higher resolution, shorter imaging times and improved accuracy, MRI has changed the traditional algorithm for workup of suspected internal derangements of knee. Advantages of MRI over other imaging modalities include lack of ionizing radiation, excellent soft tissue contrast, multiplanar imaging capabilities, non-invasive and do not require manipulation of the knee as in Arthrography. MRI Cartigram is showing promise in evaluation of cartilage lesions of the knee, which is now being increasingly done in many centres. Arthroscopy is a minimally invasive surgical procedure in which an examination and sometimes treatment of damage of the interior of a joint is performed using an arthroscope, a type of endoscope that is inserted into the joint through a small incision. Arthroscopic procedures can be performed either to evaluate or to treat many orthopaedic conditions. Knee arthroscopy has in many cases replaced the classic arthrotomy that was performed in the past. Today knee arthroscopy is commonly performed for treating meniscus injury, reconstruction of the anterior cruciate ligament and for cartilage microfracturing. Arthroscopy can also be performed just for diagnosing and checking of the knee; however, the latter use has been mainly replaced by magnetic resonance imaging. During an average knee arthroscopy, a small fiberoptic camera (the arthroscope) is inserted into the joint through a small incision, about 4 mm (1/8 inch) long. A normal saline is used to visualize the joint parts. More incisions might be performed in order to

check other parts of the knee. Then other miniature instruments are used and the surgery is performed 13,14 .

These findings are similar to R. Suryawanshi ¹⁵ et al they found The majority of the patients were in the age group 50-60 i.e. 30% followed by 30-40 were18%, >60-16%. 40-50-10%, 20-30 were 4%. The majority of the patients were Male i.e. 58% and Female were 42%. MRI The majority of the patients who undergone Arthroscopic surgeries were having Excellent and Satisfactory results i.e. 63.15% and 63.64% as compared to Non Arthroscopic Surgery i.e. 36.85% and 36.36% this observed difference was statistically significant($\chi^2 = 8.534$, df=3,p<0.03)

CONCLUSION

It can be concluded from our study that the majority of the patients were age more than 60 the most common findings under MRI and Arthroscopy were Joint effusion followed by ACL tear and ACL tear, Joint effusion the results of Arthroscopic treatment were superior as compared to non arthroscopic way of treatment hence Arthroscopy is very valuable in the diagnosis and treatment of Knee pathologies.

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