

An Evaluation of Arthroscopic Correlation of MRI Findings For Anterior Cruciate Ligament And Meniscal Injury

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Date of Submission: 23-05-2019

Date of acceptance: 08-06-2019

I. Introduction

The knee joint is the largest and most complex joint of human body. Anteriorly, the knee joint is not covered by any thick muscular covering and because of this structural weakness and very thin anterior covering the joint is prone to injuries from direct trauma and rotation. (1,2) The knee ligaments are often injured in athletic activities, specially football, gymnastic and other sports. The injury to the intra-articular structures is generally termed as internal derangement of knee. (3)

Traumatic injury was conventionally assessed clinically and subjected to radiograph. The meniscal and ligament tears cannot be diagnosed completely by clinical examination; therefore, we have to use non-invasive or invasive measures to diagnose these changes. Currently now MRI is the non-invasive examination of choice in evaluation of internal derangement of knee. (4) Arthroscopy can be used for both diagnosis and treatment, but this technique is invasive and costly and is less efficacious for evaluation of extracapsular soft tissue injury. MRI can be used as an effective screening study in those patients with uncertain indication for arthroscopic surgery. (5)

II. Materials And Methodology

This study was done at NRS Medical College and Hospital from November 2017 to September 2018. Patients were studied prospectively and evaluated clinically, radiologically and arthroscopically. Total number of 50 patients aged between 15-50 years (avg. 37) suffering from knee injuries due to varying cause. All patients had pain and instability.

PRE-OPERATIVE ASSESSMENT

All patients were assessed clinically by doing anterior drawer test, Lachman's test, pivot shift test and McMurray's test. MRI was done to assess ligament and meniscus injury and later arthroscopy of knee joint done to correlate the findings.

SURGICAL TECHNIQUE

Patients were operated under spinal anaesthesia in supine position, under pneumatic tourniquet control. Routine diagnostic arthroscopy was performed through antero-medial and antero-lateral portal. In cases of ACL tear, arthroscopic reconstruction done by taking semi-tendinosus and gracilis graft. In cases of meniscus tear balancing and repair done according to the pathology.

III. Result

In present study among 50 patients, 33 meniscus injury were diagnosed on MRI, but 30 were confirmed on arthroscopy and 36 ACL injuries were diagnosed on MRI and 32 were confirmed on arthroscopy. The sensitivity of MRI in this study in case of ACL injury was 100% and specificity 77%. In case of meniscus injury sensitivity was 100% and specificity 88%.

IV. Discussion

In our study, statistics revealed that in case of meniscal injury sensitivity of MRI is 100%, specificity 85%, positive predictive value 90.9% and negative predictive value 100% and in case of ACL injury sensitivity 100%, specificity 77.8%, positive predictive value 88.9% and negative predictive value 100%. As discussed above several similar prospective studies have shown a sensitivity of 92- 100% and a specificity of 85- 96% for the MRI Imaging diagnosis of ACL and meniscal injuries which matches with our study. MRI should be used along with clinical findings and history to provide a more complete picture, especially in complex injuries, as history and examination alone may be unreliable in less clinically evident situations, however MRI still remains the only available means to diagnose in an acute/painful knees. In situations of chronic instabilities with clinically noticeable findings MRI may not be of significant value and hence can be avoided.

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Asst. Prof.; Dr. Anindya Sundar Mukhopadhyay. “ An Evaluation of Arthroscopic Correlation of Mri Findings For Anterior Cruciate Ligament And Meniscal Injury.” IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 6, 2019, pp 05-06.