MRI KNEE FINDINGS IN PATIENTS PRESENTING WITH PAIN

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ABSTRACT

Objectives: Objective of this study is to find out importance of MRI in diagnosing various conditions of knee in patients presenting with pain. MRI is a non-invasive method and it can diagnose various conditions in patients presenting with pain and can prevent unnecessary surgical manipulations.

Materials And Methods: This study is an observational descriptive study and it involves data collected from 100 patients who presented with knee pain having random etiologies.

Results: In this observational study we found out that 67% of the patients were male and 33% were females their ages ranged from 15years upto 60 years. Knee pain was common in middle aged patients ranging from 35 to 45 years. Meniscal lesions(45%) were more common than ligamentous injury(13%). Osteoarthritic changes were seen in 39 % of patients. Out of a total 3% of patients presented with intra articular masses. Joint effusion and marrow edema was seen with the incidence of 75% and 45% respectively.

Conclusion: MRI is extremely sensitive in evaluation of bony and soft tissue abnormalities. It is alsoanon invasive method for diagnosing any abnormality in the knee joint. As knee pain is a common presenting symptom and knee abnormalities are extremely common MRI knee is now used as a common screening method for diagnosis of knee abnormalities.

INTRODUCTION

Knee pain accounts for approximately 1/3rd of musculoskeletal problems presenting to hospitals. Knee problems increase with the age of patients. Meniscus, ligament, muscle and tendon abnormalities and trauma are important causes of knee pain. Non traumatic causes include infection and inflammation.[1]Plain X-ray of knee is the first line investigation in patients presenting with pain but MRI being non invasive and highly sensitive to diagnose both bony and soft tissue abnormalities is gaining immense importance as base line investigation.[2,3]MRI is highly sensitive, it can also pick incidental findings in asymptomatic patients. Many things are missed on conventional and digital radiography which can be easily picked by MRI.[4,5] However false positive results can also occur by using MRI as sole investigation as meniscal injuries documented on MRI can actually not be due to torn menisci and only based on MRI findings un necessary surgery can be performed.[6]Therefore MRI knee should be performed after 4 to 6 weeks of onset of knee pain and only when conservative treatment has failed to give any relief to the patient. MRI is urgent and it should be done within 4 weeks in patients who are younger than 40 years of age, athletic and who sustained any trauma to knee with presenting complaint of stiff painful knee.

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OBJECTIVES

Objective of this study is to see MRI knee findings in patients presenting with pain. Rationale of this study is to find sensitivity and specificity of MRI Knee in evaluating patients presenting with knee pain as it is a non-invasive method and it can find both bony and soft tissue abnormalities. Also it is available in almost all tertiary care hospitals. So for prompt diagnosis and early management of knee abnormalities it can be used as base line investigation. It is especially indicated in trauma patients of younger age group who present with a stiff painful knee with restricted bending.

MATERIALS AND METHODS

This is a retrospective study performed in Radiology Department of Hayatabad Medical Complex, Peshawar. Duration of this study is 6 months starting from 1st September 2018 to 28th February 2019. MRI of 100 patients was done who presented with complaints of knee pain. Field strength of MRI is 1.5 Tesla.T1WI, T2WI, PD sequences and PD FAT SAT sequences of the knee were acquired. Coronal, axial and sagittal imaging planes were used to see details of bony and soft tissue abnormalities in the knee.

Inclusion criteria: Patients presenting with pain either acute or chronic with age between 15 and 60 years.

Exclusion criteria: Patients who have undergone any prior surgery. Patients with age less than 15years or more than 60 years.

RESULTS

100 patients presented with either acute or chronic pain were recruited in this retrospective study. Ages of the patients were between 15 and 60 years .

Common knee pathologies and their distribution according to gender

Knee pathologies	Male (67%)	Female (33%)	Total patients (%) (100 patients)
Meniscal injuries	30	15	45 (45%)
Ligamentous injuries	8	5	13(13%)
Intra articular tumors	2	1	3(3%)
Osteoarthritis	18	21	39(39%)
Joint effusion	49	26	75(75%)
Bone edema	31	14	45(45%)

Out of the total, 67 % were male and 33% patients were female. Meniscal lesions(45%) were more common than ligamentous injury(13%). Osteoarthritic changes were seen in 39 % of patients. Out of total 3% of patients presented with intra articular masses. Joint effusion and marrow edema was seen with the incidence of 75% and 45% respectively. Among the meniscal injuries, medial meniscal tear was the commonest upto 60% cases and lateral meniscus tear was seen in up to 18% cases. In ligamentous injuries ACL tear was seen in up to 25% cases, PCL tear in 4.5% cases. Collateral ligament injury was seen in up to 17% cases. Joint effusion was seen in almost 81% cases associated with or with out any meniscal or ligamentous injury. More than one abnormality was seen in 62% of cases.

DISCUSSION

Purpose of this study is to evaluate the diagnostic accuracy of MRI in diagnosing bony and soft tissue abnormalities of the knee. Abnormalities like meniscal tear, ligamentous injuries, bone edema, joint effusion, chondral cysts can easily be seen on MRI images. Most of the pathologies are easily missed on radiography. Most commonly affected population is male between the age of 30 and 45 years which corresponds to the study done by Magda A. M. Mansour and EnglundM,et al.[7,8,9] As males are more exposed to trauma in case of sport injuries, weight lifting and athletics etc.

MRI scan in Hayatabad Medical Complex has a field strength of 1.5 Tesla. All sequences that is T1, T2, Proton density and PDFAT SAT sequences were performed with coronal, axial and sagittal imaging planes. Joint effusion can easily be seen on T2 weighted images, menisci and ligaments are more easily and better visualized on PD weighted images. Bone edema can easily be seen on T2 FAT SAT sequences. In some special cases like tumor, inflammation T1 post contrast studies were also performed.

Most common injuries found were meniscal injuries and themost common additional finding was joint effusion. 75% of the patients had joint effusion. Studies have shown that joint effusion and marrow edema are both associated with knee pain.[10]

CONCLUSION

MRI being non invasive is an important tool for diagnosing bony and soft tissue abnormalities of kneeand is now becoming the base line investigation in patients presenting with acute or chronic pain. Due to its high accuracy it can detect even subtle abnormalities and can reduce un necessary surgical manipulations.

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