

## MRI Evaluation of Hip Pain

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Date of Submission: 05-04-2022

Date of Acceptance: 20-04-2022

### I. Introduction

Hip joint is one of the stable and major weight bearing joint with significant mobility. Hip pain can lead to significant morbidity in one's lifestyle. Many radiological investigations are available for hip pain evaluation like x-ray, ultrasound, CT and MRI. X-ray and CT can diagnose bony pathologies accurately but have limited role in evaluation of soft tissue pathologies and radiation exposure is also drawback of these modalities, while bony and cartilaginous pathologies are limitations of ultrasound. Hip pain can be due to numerous pathological conditions like congenital and development, infective, arthritic and neoplastic. MRI has excellent soft tissue contrast and resolution with no operator dependence and no ionizing radiation and is the imaging modality of choice for evaluation of hip joint abnormalities. MRI provides excellent insight regarding occult bony and cartilage injuries like stress fractures, avascular necrosis, and osteoarthritis, as well as soft tissue abnormalities such as muscle tears and bursitis and tendonitis.

### II. Aims And Objectives

- Aim of the study is to evaluate the role of MRI in assessment of painful hip joint in patients referred to the radiology department of Shardaben hospital, saraspur.

### III. Methods

- In this Observational prospective study, All included 100 patients (irrespective of age and sex) who presented over a period from July 2020 to June 2021, with painful hip joint underwent MRI scan on superconductive GE 1.5 T Machine.
- Patients who had contraindication for MRI scan and didn't consent for participation, were excluded from study.

### IV. Results

- Of the studied 100 patients with painful hips, There were 55 Male patients and 45 female patients, their ages ranged from 10 to 60 years with a mean age of 40 years. The most frequent involved age group was the group >40 years.
- The study revealed pathological findings in 93 patients, of which avascular necrosis of femur head was the most frequent finding followed by the rest of the findings.
- Bone infarct was least common cause

DIAGNOSIS	NUMBER OF PATIENTS	PERCENTAGE
AVASCULAR NECROSIS	40	40%
OSTEOARTHRITIS	18	18%
FRACTURE	07	7%
SACRO-ILITIS	06	6%
INFECTIVE ARTHRITIS	05	5%
SYNOVITIS	04	4%
BURSITIS	04	4%

INTRAMUSCULAR ABSCESS	03	3%
TENDINITIS	02	2%
SUBCHONDRAL CYST	02	2%
SYNOVIAL EFFUSION	01	1%
BONEINFARCT	01	1%
NORMAL	07	7%

**MRI finding seen in cases of avascular necrosis**

MRI findings	Cases	%
Focal subchondral signal abnormality	40	40%
Double line sign	32	80%
Marrow edema	14	35%
Joint effusion	8	20%

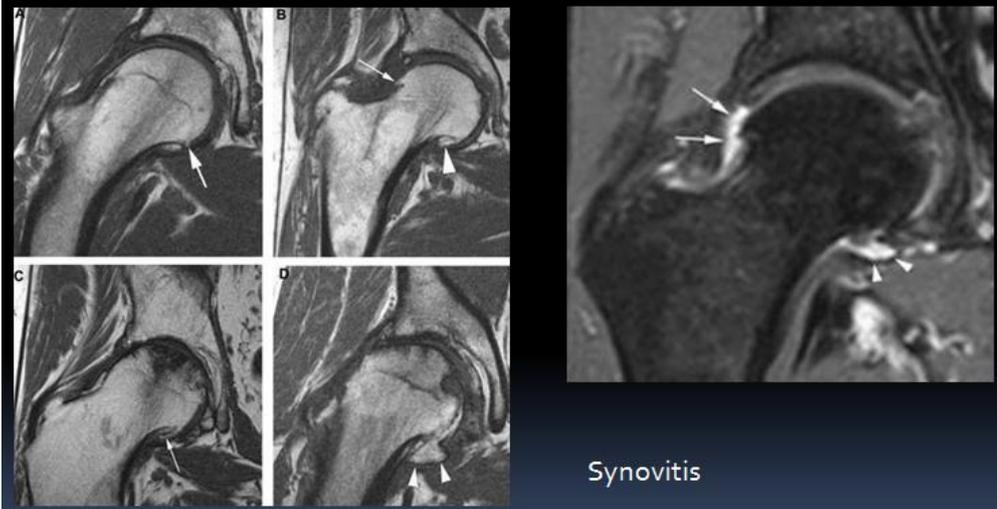
**MRI findings seen in cases with osteoarthritis are**

MRI findings	Cases	%
Joint effusion	7	100
Synovial thickening	5	71
Marrow edema	5	71
Subchondral cysts	3	42
Joint space narrowing	2	28
Marginal osteophytes	2	28
Soft tissue edema	1	14

Double rim sign



Osteophytes





## V. Conclusion

MRI is a noninvasive, safe and accurate imaging modality for diagnosing various etiologies of painful hip joint. MRI not only diagnosed the disease but also give details about disease extent and its complication.

- Due to its technological supremacy in demonstrating anatomical details, identification of abnormalities like joint effusions, synovial changes, bone marrow signal alteration, articular cartilage abnormalities, muscle pathologies, subchondral bone changes and juxta articular soft tissues, MRI is the best modality of choice in imaging of painful hip.
- Reorganization of all the details regarding disease helps in early diagnosis as well as better medical or surgical management which helps in reducing significant amount of patient's suffering and hence better prognosis and outcome of disease which finally helps the patients as well as treating doctor.

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