



MR Evaluation of Non-Traumatic Hip Pain

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Abstract

Background: Hip pain is a common yet non-specific symptom that may result from a number of articular as well as extra articular conditions. Imaging plays an important role in evaluation of hip pain and MRI is often most valuable imaging method in evaluating these cases.

Methods: This prospective observational study was carried out at Image Hospital, Hyderabad over a period of one year. Patients with unilateral or bilateral non-traumatic hip pain were evaluated by plain radiographs and MRI. Plain radiographs and MRI findings were reviewed and the final diagnosis was suggested based on clinical, laboratory and imaging findings. Equivocal or nonspecific imaging findings were further confirmed by cytology /histopathology wherever indicated.

Results: A total of 85 cases of non-traumatic hip pain were evaluated. A wide spectrum of conditions including degenerative, ischemic, inflammatory/infective and neoplastic lesions were discovered as the cause of hip pain.

Conclusion: Hip pain can arise from a wide variety of conditions and MRI is a very useful modality in evaluation of these conditions.

Keywords: Hip, Pain, Imaging, Mri, Avascular Necrosis.

INTRODUCTION

Hip pain is a common clinical problem with a long list of possible etiologies. Symptoms apparently originating from the hip may actually arise from the periarticular structures, pelvis, sacroiliac joint, lumbar spine or from distant sites like abdominal wall, retroperitoneum and genitourinary tract. To determine the exact origin of hip pain can be quite challenging. Non-traumatic hip pain may be unilateral or bilateral and may further be categorized as either anterior (groin) pain, lateral (trochanteric) or posterior (gluteal) pain based on its location^[1].

Imaging plays a pivotal role in evaluation of hip pain. Plain radiographs of the hip joint and pelvis are the first line of imaging but have limitation in assessment of soft tissues and intra articular structures. Ultrasound is a useful tool in differentiating intra articular from extra articular pathology and helps in guiding diagnostic and therapeutic interventional procedures. CT is useful in evaluation of bone lesions but suffers from lack of soft tissue contrast.

As of today, MRI is the modality of choice for evaluation of hip pain. It provides excellent soft tissue resolution, multiplanar imaging and is

without the risk of ionizing radiation. MRI is the modality of choice for imaging a vascular necrosis, radiographically occult fractures, marrow replacement disorders, musculoskeletal neoplasms, and various arthritides involving the hip joint^[2].

This study evaluated patients with non-traumatic hip pain using plain radiographs and MRI and assesses the role of MRI as an imaging tool in these patients.

MATERIAL AND METHODS

Patients referred to the orthopedic department of our hospital with non-traumatic hip pain were studied over a period of one year.

Inclusion Criteria

- Patients presenting with unilateral or bilateral hip pain
- Patients of all age groups and both sexes

Exclusion Criteria

- Patients with significant trauma.
- Patients with previous history of hip surgery.
- Patients with cardiac pacemakers, ferromagnetic aneurysm clips, cochlear implants and other ferromagnetic implants.
- Patients with claustrophobia.

Plain radiographs of the pelvis and hip joints were obtained for all patients followed by MRI study performed on Magnetom Concerto 0.2 T scanner

(Siemens, Germany). A few cases referred from other hospitals with MRI performed on 1.5T scanner elsewhere were also included in the study. Bilateral hip protocol using Pelvic/body coil was employed in all cases with T1 weighted, T2 weighted and STIR images obtained in axial, coronal and sagittal planes. Intravenous contrast (Gadolinium @ 0.1mmol/kg) was administered when thought necessary based on the MRI findings.

Two radiologists evaluated all plain radiographs and MRI studies independently. Final diagnosis was based on clinical, laboratory and imaging findings and further confirmed by cyto/histopathology where indicated.

OBSERVATIONS & RESULTS

This prospective study included a total of 85 patients presenting with hip pain, out of which 64 (75%) were males and 21(25%) females with their ages ranging between 12 to 75 years (mean-44 years).

Of the 85 patients, 49 presented with unilateral hip pain and 36 with bilateral hip pain. Out of 85 patients, 58 presented with anterior or groin pain, 18 with posterior or gluteal pain and 9 with lateral or trochanteric pain.

A definite diagnosis could be made in 76 out of the 85 cases with the following conditions as the cause of hip pain.

Table – 1 Conditions Causing Hip Pain

Etiology		No. Of Patients(N= 85)	Percentage (%)
Avascular Necrosis		26	30
Infective	Tubercular Arthritis	8	9.5
	Osteomyelitis	3	3.5
	Osteomyelitis With Septic Arthritis	2	2.3
	Pyomyositis/Cellulitis	2	2.3
Osteoarthritis		9	11
Sacroiliitis		8	9.5
Neoplasia	Primary	4	5
	Metastasis	2	2.3
	Malignant Fibrous Histiocytoma	1	1.2
Degenerative Disc Disease		6	7
Stress Fractures		3	3.5
Perthes Disease		2	2.3
Transient Osteoporosis Of Hip		1	1.2

AGE DISTRIBUTION OF PATHOLOGICAL CONDITIONS

Different age groups presented with different spectrum of disease. The most common cause of hip pain in the age group of 10 to 30 years was infection followed closely by avascular necrosis

of the femoral head. Between 31-50 years the commonest cause of hip pain was avascular necrosis of femoral head and above 50 years osteoarthritis was the commonest condition causing hip pain.

Table- 2 Age Distribution of Pathological Conditions

Age Group (Years)	Etiology
10- 30	Infective, Avascular Necrosis.
31-50	Avascular Necrosis
51-70	Osteoarthritis

A total of 49 patients presented with unilateral hip pain. The common conditions presenting as

unilateral pain were infection and avascular necrosis.

Table- 3: Causes of Unilateral Hip Pain

Etiology		No. Of Patients(N= 49)	Percentage (%)
Avascular Necrosis		10	20
Infective	Tubercular Arthritis	8	16
	Osteomyelitis	3	6
	Osteomyelitis With Septic Arthritis	2	4
	Soft Tissue Infection	2	4
Osteoarthritis		2	14
Sacroilitis		5	10
Neoplasia	Primary	4	8
	Metastasis	2	4
	Soft Tissue Tumour	1	2
Degenerative Disc Disease		2	4
Stress Fractures		1	2
Perthes Disease		2	4
Transient Osteoporosis Of Hip		1	2
Unknownetiology		5	10

A total of 36 patients presented with bilateral hip pain. The common conditions presenting as bilateral hip pain were a vascular necrosis

followed by osteoarthritis, sacroilitis and degenerative lumbar disc disease.

Table- 4: Causes of Bilateral Hip Pain

Etiology	No. Of Patients(N= 36)	Percentage (%)
Avascular Necrosis	16	44
Osteoarthritis	6	17
Sacroilitis	3	08
Degenerative Disc Disease	5	14
Occult Fracture	2	05
Unknown Etiology	4	11

EVALUATION BY PLAIN RADIOGRAPHS

Plain Radiographs of the pelvis including both hip joints were obtained in all 85 patients prior to the MRI evaluation.

Out of a total of 85 cases, Plain radiographs were abnormal in 37 patients. A Radiological diagnosis could be suggested in 34 patients and non-specific findings were present in 3 cases.

Table-5: Diagnosis on Plain Radiographs

Diagnosis	No. Of Patients(N=85)
Avascular Necrosis	10
Sacroilitis	03
Osteoarthritis	05
Degenerative Disc Disease	03
Tuberculous Arthritis	03
Primary Neoplasms	03
Metastasis	02
Perthes Disease	02
Osteomyelitis	02
Non Specific Changes	03
Normal	48

EVALUATION BY MRI

Out of a total of 85 cases evaluated by MRI a definite diagnosis could be suggested in 76 cases. MRI study was normal in 9 cases.

Table-6: Diagnosis on MRI

Etiology		No. Of Patients (N=85)	Percentage (%)
Avascular Necrosis		26	30
Infective	Tubercular Arthritis	8	9.5
	Osteomyelitis	3	3.5
	Osteomyelitis With Septic Arthritis	2	2.3
	Soft Tissue Infection	2	2.3
Osteoarthritis		9	11
Sacroilitis		8	9.5
Neoplasia	Primary	4	5
	Metastasis	2	2.3
	Soft Tissue Tumour	1	1.2
Degenerative Disc Disease		6	7
Stress Fractures		3	3.5
Perthes Disease		2	2.3
Transient Osteoporosis Of Hip		1	1.2
Unknown Etiology		9	11

CORRELATION OF PLAIN RADIOGRAPHS WITH MRI

Of the total 85 cases, MR showed abnormality in 76 cases where as plain radiograph was abnormal

in 37 patients. All the 37 patients with abnormal plain radiographs had an abnormal MRI study. Only 9 out of 48 patients with normal plain radiograph had a normal MR.

TABLE –7: Correlation of Plain Radiographs With MRI.

	Normal Mri Study	Abnormal Mri Study
Normal Radiographs	9	39
Abnormal Radiographs	0	37

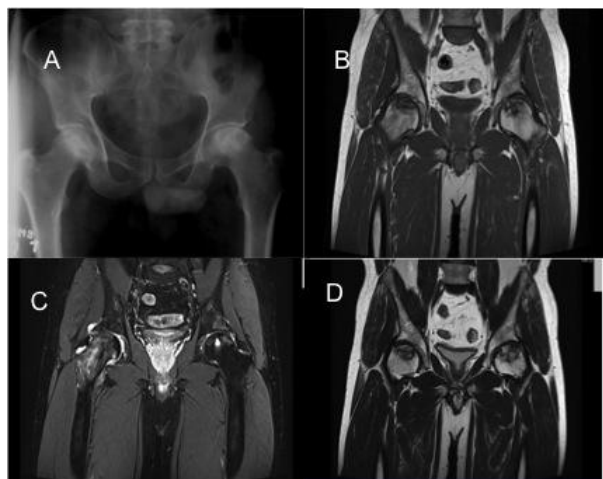
Case 1. Adult Male with Bilateral Hip Pain

Fig 1 (A) - Plain Radiograph Of Pelvis Shows Patchy Sclerosis Of Bilateral Femoral Heads. (B-D) - Coronal Mri Images Show Altered Signal Intensity Of Both Femoral Heads With Subchondral T1 Hypointensity(Geographic Pattern) With Marrow Edema(Right>Left) And Mild Joint Effusion On The Right.Final Diagnosis- Avascular Necrosis Of Bilateral Femoral Heads.

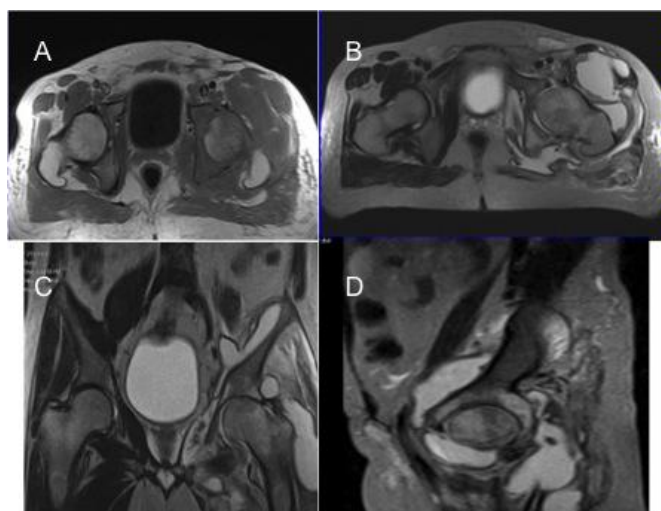
Case 2 – A 33year Old Male with Left Hip Pain and Low Grade Fever for 8 Months

Fig 2 (A,B) Axial And (C,D) Coronal Mri Images Show Altered Signal Intensity In The Head Of Left Femur & Acetabulum With A Large Collections In Anterior And Lateral Group Of Muscles Of The Left Thigh. Final Diagnosis- Tubercular Arthritis Of Left Hip Joint.

Case 3- A 29 Yr Old Male with Low Grade Fever and Left Gluteal Pain For 3 Months

Fig 3 (A,B)Coronal And (C) Sagittalmri Images Show Altered Marrow Signal Around The Left Sacroiliac Joint With Irregularity Of Articular Margins And Adjacent Soft Tissue Hyperintensity. Final Diagnosis- Tubercular Sacroilitis

Case 4- A 12 Yr Old Boy with High Grade Fever, Left Hip Pain and Limp for 20 Days. The plain Radiographs Were Unremarkable.

Fig 4 (A, B) Coronal And (C) Sagittal And (D) Axial Mri Images Show Altered Marrow Signal Of Left Femoral Neck And Trochanteric Region Suggestive Of Bone Marrow Edema With Surrounding Soft Tissue Hyperintensity. Final Diagnosis -Osteomyelitis Of Left Femur

Case 5- A 58 Yr Old Male with Left Hip Pain for 8 Months

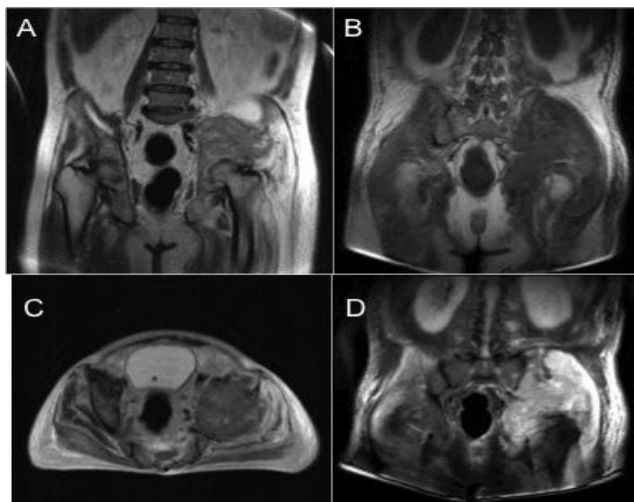


Fig 5 (A,B,D) Coronal And (C) Axial Mri Images Show A Large Heterogenous Signal Intensity Mass Lesion Involving The Left Iliac Bone And Acetabulum With Extension To Periarticular Soft Tissues. Final Diagnosis- Chondrosarcoma Of Left Iliac Bone

Case 6- A 54 Yr Old Male With Bilateral Hip Pain For 10 Months. No History Of Trauma.

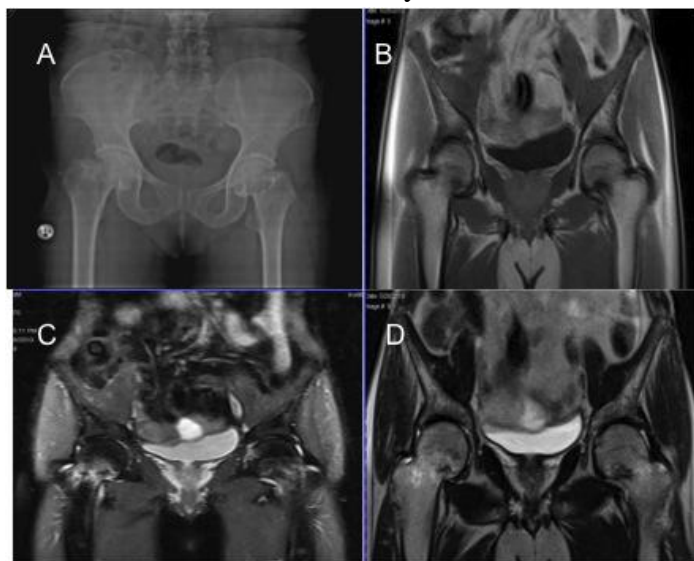


Fig 6 (A)-Plain Radiograph Shows Mild Osteoarthritic Changes In Both Hip Joints.(B-D) Coronal Mri Images Show Linear Hypointensity (On All Sequences) Along Bilateral Femoral Necks With Surrounding Marrow Edema. Final Diagnosis- Stress Fractures Of Both Femoral Necks.

Case 7- A 48 Yr Old Female with Low Back Ache and Bilateral Hip Pain For 2 Months. Plain Radiographs Were Unremarkable.

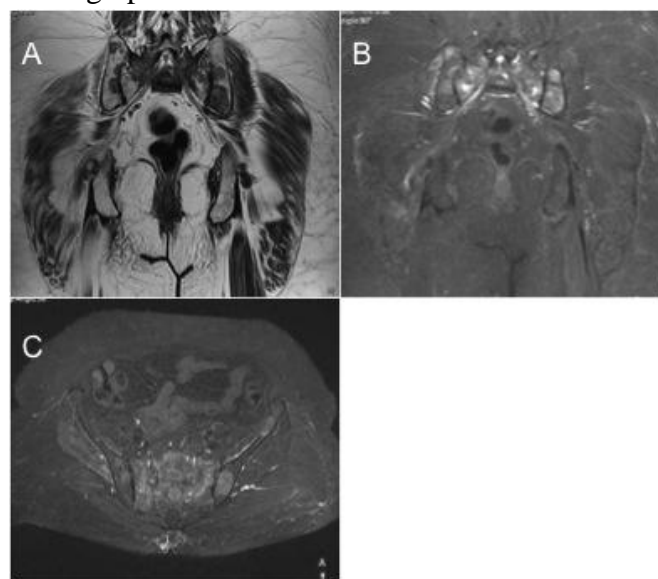


Fig 7 (A,B) Coronal And (C) Axial Mri Images Show Multiple T1 Hypointense, Stir Hyperintense Focal Lesions Involving The Pelvic Bones And Sacrum. Final Diagnosis-Metastasis From Carcinoma Breast.

Case 8- A 54 Yr Old Female With Right Hip Pain For One Month.

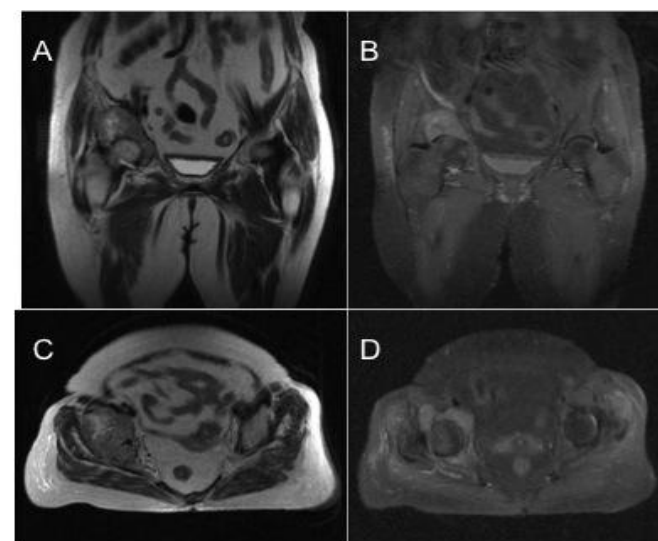


Fig 8 (A,B) Coronal And (C,D) Axialmri Images Show T1 Hypointense,Stir Hyperintense Expansile Lesion Involving The Right Acetabulum. Final Diagnosis-Metastasis From Renal Cell Carcinoma.

Case 9- A 12 Yrs Old Boy with Left Hip Pain and Limp For 8 Months.

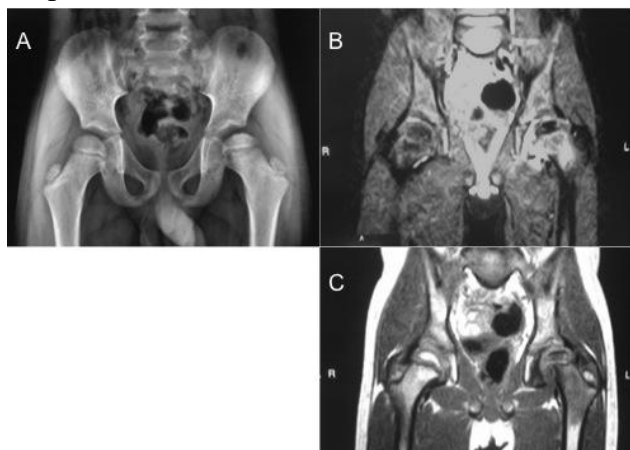


Fig 9 (A)- Plain Radiograph Shows Smaller Left Femoral Capital Epiphysis With Irregularity Of Outline.(B,C) Coronal Mri Images Shows Altered Marrow Signal Of Left Femoral Capital Epiphysis And Neck With Joint Effusion. Final Diagnosis- Legg Calve Perthes Disease

Case 10- A 31-Year-Old Male with Left Hip Pain For 3 Months.

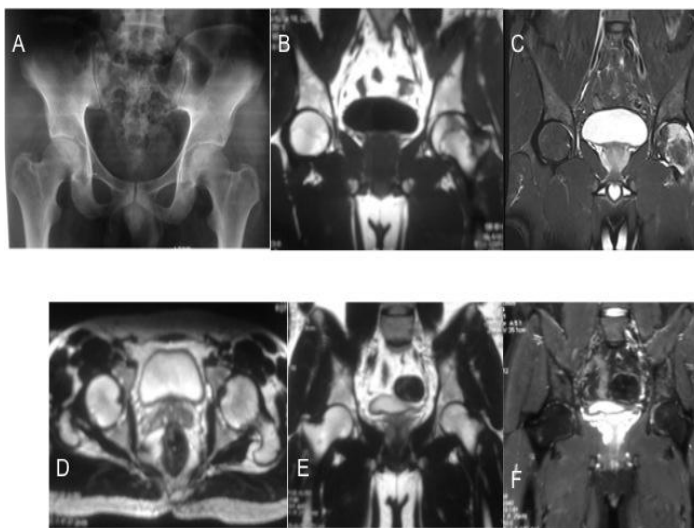


Fig 10 (A) -Plain Radiograph of Pelvis Is Unremarkable. (B,C) Coronal Mri Images Show Extensive Marrow Edema In Left Femoral Head And Neck With Mild Joint Effusion. (D-F) Follow Up Mri Images After 3 Months Of Symptomatic Treatment Appear Normal. Final Diagnosis- Transient Osteoporosis Of Left Hip

Case 11 – A 46 Yr Old Female With Right Hip Pain For 1 Month.

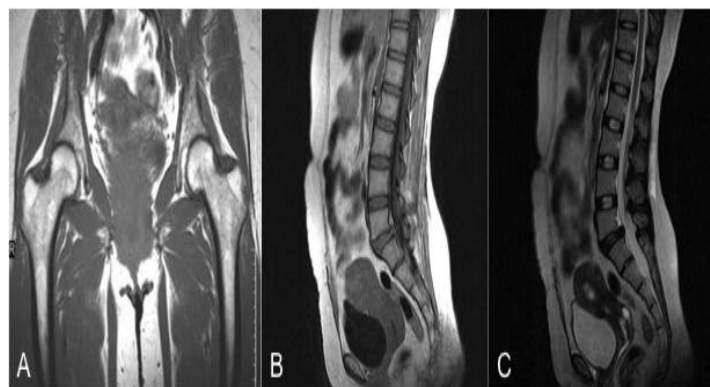


Fig 11 (A) Mri Of Hip Joints Appears Normal. (B,C) Sagittal Mri Images Of Lumbosacral Spine Revealed Sacralised L5 Vertebra With Grade I Spondylolisthesis Of L4 Over L5 And Degenerative Disc Protrusion At This Level Causing Neural Compression On The Right Side – The Likely Cause Of Hip Pain.

Case 12- A 64 Yr Old Male with Right Hip Pain And Mild Swelling Of The Proximal Thigh



Fig 12 (A,B) Coronal And (C,D) Axial Mri Images Show A T1 Hypointense, T2 , Stir Hyperintense Lesion In The Soft Tissues Of The Right Anterior Thigh. Final Diagnosis- Malignant Fibrous Histiocytoma Of The Thigh

DISCUSSION

This prospective study was undertaken to evaluate patients presenting with non-traumatic hip pain using plain radiography and MRI. Our study included 85 patients with hip pain, out of which 64(75%) were males and 21(25%) were females.

The patients ranged from 12 to 75 years of age (mean-44 years). The mean duration of hip pain in our study group was four and half months.

Out of 85 cases, 36(42%) patients presented with bilateral hip pain and 49(58%) patients with unilateral pain. Hip pain was also categorized clinically as anterior or groin pain in 58(68%) patients, posterior or gluteal in 18(21%) and lateral or trochanteric in 9(11%) patients.

After clinical assessment of possible disease plain radiographs of the pelvis were obtained in all cases. Out of 85 cases, 37(44%) cases showed abnormalities on plain radiographs and the remaining were normal. Subsequently MRI was performed for evaluation of both hip joints using the hip protocol and two radiologists independently reviewed the images. On MRI 76(89%) out of 85 cases showed abnormal findings, and the remaining 9(11%) cases were normal.

The imaging protocol used in our study was selected to combine the speed of examination with imaging sequences (T1, T2 and STIR) and imaging planes (Coronal, axial and sagittal). It was found that STIR coronal images were the most sensitive and informative in screening out normal from abnormal cases. Similar observation has been made by Khoury NJ et al^[3] and Khurana B et al^[4] in their studies suggesting the use of limited MR protocol in the evaluation of limited MR Hip protocol.

Intravenous contrast administration was required only in 3 of our cases with suspected infective conditions namely tubercular and septic arthritis and pyomyositis.

In the present study we encountered a wide spectrum of lesions presenting with hip pain. The common pathologies noted were a vascular necrosis of the femoral heads (26 cases), osteoarthritis (9 cases), sacroilitis (8 cases), degenerative lumbar disc disease(6 cases) and a number of infective conditions like tubercular arthritis(8 cases), septic arthritis(2 cases), osteomyelitis (3 cases), pyomyositis(1 case). Three cases of occult femoral neck fractures, two cases

of Perthes disease and one case with transient osteoporosis of the hip were also observed in our study. A few cases with neoplastic lesions like chondrosarcoma of the iliac bone, malignant fibrous histiocytoma of thigh and metastatic lesions from carcinoma breast and renal cell carcinoma were also diagnosed.

Common causes of bilateral hip pain included a vascular necrosis followed by osteoarthritis, sacroilitis and degenerative lumbar disc disease. Etiologies presenting with unilateral hip pain included inflammatory/infective and neoplastic lesions. The most common cause of anterior hip pain was avascular necrosis and infective arthritis. Posterior hip pain was noted commonly in the non-hip causes like sacroilitis and degenerative lumbar disc disease. Ragab Y et al^[5] studied 34 patients with hip pain using MRI and found similar spectrum of disease conditions prevalent in the population.

In our study we observed that osteoarthritis of Hip was the commonest cause of hip pain in the elderly population (5th to 7th decade) and avascular necrosis was the commonest cause of hip pain in 3rd and 4th decades. Inflammatory /infective etiologies were observed in all age groups. A similar observation was made by Fang C and Teh J^[6] in their study.

The most common cause of hip pain in our study was avascular necrosis or osteonecrosis of the femoral heads. Out of 85 cases with hip pain 26 patients were diagnosed as having AVN by imaging. The total number of patients with bilateral AVN was 16 and unilateral 10 involving a total of 42 hip joints. The most common age at presentation was 25 to 55 yrs. Out of the 26 patients with AVN, 17 were males and 9 were females.

Plain radiographs were abnormal in only 10(38%) patients. The findings on plain radiographs included sclerosis, flattening, subchondral fragmentation/collapse of femoral heads in different stages of the disease. Secondary osteoarthritic changes with joint space reduction were noted in a few patients with chronic AVN.

MRI detected all cases with suspected AVN in different stages of the disease. The spectrum of MR findings included marrow edema, crescent sign, sclerosis, articular surface irregularity, joint space reduction and effusion. MR was found to be highly sensitive and specific in evaluation of AVN and scores over plain radiographs, which fail to pick up early disease.

Glickstein et al^[7] and Huang et al^[8] in different studies have described the role of MR in evaluation of avascular necrosis and compared it with plain radiography with similar results.

The next common etiological group in our study included infective pathologies in 14 patients. These included patients of different age groups most commonly affecting the extremes of ages i.e., children and elderly patients. This age distribution is similar to that noted by Fang C and Teh J^[6].

Of these 14 cases, 8 were diagnosed as tubercular arthritis and 5 cases had pyogenic osteomyelitis with septic arthritis in 2. Pyomyositis involving muscles of proximal thigh with abscess formation was noted in one case.

Infective etiology was a common cause of hip pain in our study where as Chevrot A et al^[9] studied the causes of hip pain in adults and found that infective pathologies of hip were relatively rare.

Plain radiographs were diagnostic for infective arthritis only in 3 patients and osteomyelitis in 2 patients. Non-specific findings like osteopenia/ erosions were noted in 2 patients and no abnormality was noted in remaining seven cases there by suggesting poor sensitivity and specificity of plain radiographs in evaluation of this subset of patients.

MR features were diagnostic of infective pathology in all 14 cases. The imaging features suggestive of tubercular arthritis seen in 8 patients included synovial thickening, sub articular marrow edema, bone erosions, joint effusion and soft tissue involvement in the form of large abscesses. Intravenous contrast was used in one patient, which showed rim enhancement of the

intraosseous as well as soft tissue abscess suggesting tubercular etiology.

A Total of 5 cases with pyogenic osteomyelitis/ septic arthritis were also diagnosed in our study group. Three out of five cases in this group of patients had negative plain radiographs. However, MR showed features of marrow edema, subchondral bone involvement and joint effusion and together with clinical and lab investigations a definite diagnosis could be reached.

Jung AH et al^[10] and Sung Hwan Hong et al^[11] in their studies on MR imaging features of inflammatory and infective conditions of the hip joint have described similar features that differentiate tubercular from pyogenic and rheumatoid arthritis. Midiri M et al^[12] in their study of patients with infective conditions found that MR findings in this group are usually non specific but when put together with clinical and laboratory findings allows early and specific diagnosis, an observation similar to our study.

The next common etiology of hip pain in our study was osteoarthritis (9 cases). The most common age group affected was 50 to 70 yrs. Bilateral hip joint involvement was seen in 7 patients and unilateral hip involvement was seen in 2 patients of younger age group, both of these had history of childhood trauma. Plain radiographic findings in osteoarthritis included superior joint space loss, osteophyte formation, subchondral sclerosis and cyst formation. These findings were frequently bilateral.

MRI in patients with osteoarthritis included features like focal loss of articular cartilage, osteophytes, paralabral cysts, joint effusion and joint space reduction. It was observed that presence of marrow edema and joint effusion correlated well with the site and severity of symptoms. King C Li et al^[13], Horii M et al^[14] have studied spectrum of findings in osteoarthritis in different grades of severity of disease. The findings of osteoarthritis in our study are similar to findings given by various authors.

Three patients with hip pain and normal plain radiographs were diagnosed as having occult

fractures of femoral necks on MRI. Fractures were bilateral in 2 cases and unilateral in one. Two of these patients were young athletes.

The diagnostic findings for stress fractures for MRI included linear hypointensity in femoral neck (on all sequences) with surrounding marrow edema. The present study correlated with observations made by Sankey RA et al ^[15], Mengiardi et al ^[16], Fang C and Teh J ^[6] in their studies. Newberg AH and Newman JS ^[17] in their study advocate MR as initial imaging modality after initial radiography for detecting occult fractures.

Perthes disease was diagnosed in 2 cases. Both were young patients presenting with unilateral hip pain. Plain radiographs were abnormal in both cases and showed asymmetry in size of femoral epiphysis, articular surface irregularity and widening of medial joint space. MR findings in Perthes disease included presence of T1 hypointensity, T2, STIR hyperintensity suggestive of marrow edema in the femoral epiphysis with irregularity of outline, widening of the medial joint space. The contralateral epiphysis was normal on MRI.

Bos CF et al ^[18] studied 16 hips with Perthes disease over a mean period of two years. The imaging findings in their study correlated with our present study,

Transient osteoporosis of hip was diagnosed in one of our cases, a 31-year-old male with unilateral hip pain of three months duration. His plain radiographs were normal with no clinical/lab abnormality. MRI images revealed diffuse marrow edema in the femoral head and neck with sparing of the subchondral bone. The patient was managed conservatively with symptomatic treatment. A follow-up MRI after 3 months was normal thereby confirming the diagnosis.

Grimm J et al ^[19] in their study on TOH described typical stages of TOH with normalization of MR findings within 6 to 10 months. Malizos KN et al ^[20] described that absence of subchondral lesions and sparing of subchondral zone from marrow edema were MR findings that highly

correlate to TOH. Similar observation was made in our study.

Seven out of 85 cases with hip pain were diagnosed as having neoplastic lesions including benign and malignant tumors of the bones/ soft tissues. These included chondrosarcoma of the iliac bone, malignant fibrous histiocytoma of the thigh. MRI detected two cases with metastatic bone lesions involving the iliac bone and acetabulum. MR features of these benign and malignant bone and soft tissue lesions were suggestive but non-specific and the final diagnosis was established by cytology/histopathology.

Sacroilitis was diagnosed in 8 patients out of whom 5 were bilateral. All 5 cases with bilateral sacroilitis were diagnosed to have seronegative spondyloarthropathy. The three cases with unilateral sacroilitis were diagnosed as tubercular in etiology based on imaging, lab findings and response to treatment.

Degenerative lumbar disc disease was diagnosed as the cause of hip pain in 6 patients. All six patients were above 40 years of age. Four of these presented with bilateral hip pain whereas two of them presented with unilateral hip pain. Hip joint was normal on MRI in all 6 patients. Degenerative disc disease was identified on sagittal MR images and the study was extended to include the lumbar spine.

Mengiardi B et al ^[16] in their study described various conditions causing hip arising from the hip and from surrounding structures. According to the author hip pain may arise from the pelvis, sacroiliac joint, lumbar spine and periarticular structures. Our study similarly showed sacroilitis, degenerative disc disease and periarticular infective and neoplastic conditions as a cause of hip pain.

Thus the imaging spectrum of a number of conditions resulting hip pain were evaluated by plain radiography and MR and we found that combined with clinical diagnosis and lab tests imaging can provide specific diagnosis in a large number of conditions. MR is particularly useful in early detection of avascular necrosis, stress

fractures, Perthes disease and infections where plain radiographs may be entirely normal.

CONCLUSIONS

Hip pain is a common clinical problem with varied etiologies. To determine the exact origin of hip pain can be a challenging task as symptoms may arise not only from the hip joint but also from periarticular tissues as well as remote conditions of the pelvis, sacroiliac joints and lumbar spine. Imaging plays a very important role in evaluation of non-traumatic hip pain. Although Plain radiographs remain the initial imaging tool for evaluation of the hip joints and pelvis specially in trauma cases, MRI today is the modality of choice for evaluation of non-traumatic hip pain. MRI has distinct advantages over other modalities in being radiation free, excellent soft tissue contrast resolution, multiplanar imaging capability and high sensitivity in detecting early musculoskeletal lesions.

We studied and diagnosed a wide spectrum of MR imaging findings in patients with non-traumatic hip pain. The various underlying conditions included Degenerative, ischemic, inflammatory/ infective and neoplastic lesions. Avascular necrosis and infections emerged as the two most common causes of hip pain in our study population accounting for nearly half the cases. MRI is a highly sensitive and specific modality that detects early disease in conditions like avascular necrosis, Perthes disease, osteomyelitis, Infective arthritides and stress fractures while plain radiographs are still normal, leading to early diagnosis and timely management of these conditions. MRI not only demonstrates the pathologies of the hip joint and periarticular structures but also provides global assessment of referred pain to the hip joint from conditions like Sacroilitis, Degenerative disc disease and pelvic pathologies.

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