

INTRODUCTION

Hip pain is a prevalent condition that affects individuals across all age groups. The causes of hip pain can be acute and chronic as well as traumatic and non-traumatic origins. Identification of the underlying cause is crucial, as treatment approaches differ based on the specific pathology.

The clinical assessment of painful conditions of the hip is often hard, which leads the assessment to rely on imaging to establish diagnosis. MRI is the investigation of choice in cases of non-traumatic hip pain that show inconclusive radiographs. In cases with painful hip disorders, bone marrow edema is a common finding in MRI.

BME has a relation to a large variety of diseases. However, in many cases its pattern or its existence can narrow the differential diagnoses or even help in pointing a specific diagnosis.

It can be categorized as primary, that has no obvious cause, and secondary, which is related to specific disorders.

AIM OF THE WORK

The aim of this study was to evaluate the role of MR in differentiating between variable causes of bone marrow edema of the hip in setting of recent non-traumatic hip pain.

PATIENTS AND METHODS

Patients: This study included 30 patients presenting with recent non-traumatic hip pain.

Methods: All patients underwent the following:

- History taking and clinical examination.
- Pain X-Ray of both hips (AP and lateral views).
- MRI of both hips using 1.5-T Philips Achieva machine with body coil to allow bilateral comparison. The used sequences were: T1WI, T2WI and Fat-suppressed PDWI (in axial, sagittal and coronal planes).
- Follow up MRI after two months in cases with isolated femoral head BME.
- CT: Three patients underwent complementary MDCT of both hips.

RESULTS

Table (1): Distribution of the studied hips according to site of bone marrow edema (n = 36)

Site of bone marrow edema	Total (n = 36)	Final diagnosis					
		AVN (n = 18)	Stress fracture (n = 7)	TOP (n = 6)	Septic arthritis (n = 1)	OO (n = 3)	Osteochondroma (n = 1)
Focal	10 (27.8%)	4 (22.2%)	2 (28.6%)	0 (0.0%)	0 (0.0%)	3 (8.3%)	1 (100.0%)
Neck	5 (13.9%)	0 (0.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	3 (100.0%)	1 (100.0%)
Sub chondral	5 (13.9%)	4 (22.2%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Diffuse	26 (72.2%)	14 (77.8%)	5 (71.4%)	6 (100.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)
Sparing of infero-medial femoral head	6 (23.1%)	2 (14.2%)	0 (0.0%)	4 (66.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Sparing of greater trochanter	13 (50.0%)	7 (50%)	3 (60.0%)	3 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Extension to inter-trochanteric region	25 (96.2%)	14 (100%)	4 (80.0%)	6 (100.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)
Associated acetabular and soft tissue edema	1 (3.85%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	1 (0.0%)	1 (0.0%)

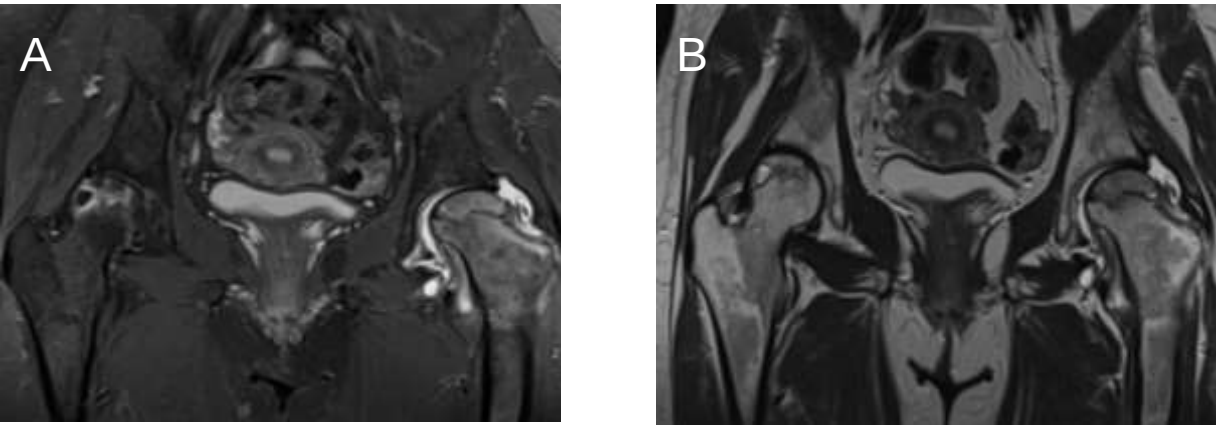


Figure 1: A) Coronal PDWI-FS demonstrating diffuse left femoral head and neck marrow edema and focal subchondral right femoral head marrow edema. B) Coronal T2W image demonstrating bilateral serpiginous subchondral areas of altered signal intensity and relative fattening of superior aspect of left femoral head. Diagnosis: Bilateral femoral head AVN.

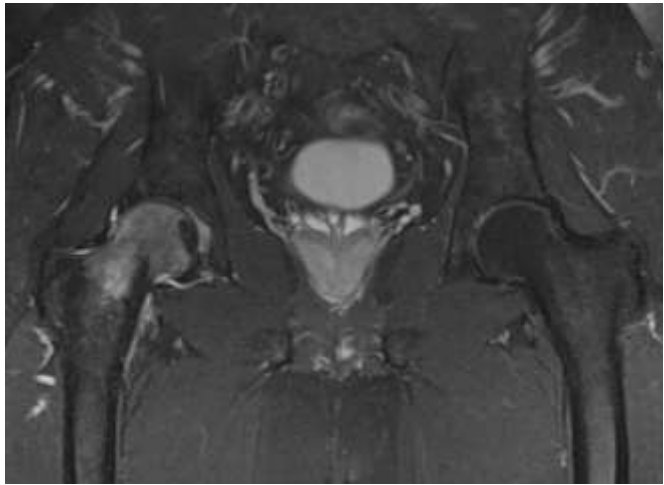


Figure 2: Coronal PDWI-FS demonstrating diffuse right femoral head and neck bone marrow edema with sparing of the medial femoral head “sparing sign” Diagnosis: Right hipTOP.

CONCLUSION

- MR imaging, with its ability for tissue characterization and high soft tissue contrast resolution, is a safe imaging modality that has proved to be of great value in diagnosis of hip disorders.
- Bone marrow edema is a non-specific finding that has a relation to a large variety of diseases. However, analysing the BME pattern can narrow the differential diagnoses or even help in pointing a specific diagnosis.