ROLE OF MAGNETIC RESONANCE IMAGING IN DIAGNOSIS OF FINGER LESIONS

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INTRODUCTION

Worldwide, finger pathologies (including traumatic and non-traumatic) are very common and crucial medical issues.
Magnetic resonance imaging (MRI) is commonly used tool to noninvasively examine the anatomy and pathology of the fingers; it is often an ideal imaging modality in the assessment of various pathologic conditions of this region.MRI is an effective method for helping to determine the cause of finger pathology by demonstrating a broad spectrum of osseous and soft tissue abnormalities such as tendon, collateral ligaments and pulleys system abnormalities, benign and malignant soft tissue lesions and inflammatory conditions. Knowledge of the imaging anatomy of the hand is essential for reporting MRI. This familiarity should include the phalanges, tendons (extensor and flexor), ligaments and nerves.

AIM OF THE WORK

The aim of the study was to assess the role of magnetic resonance imaging in diagnosis of finger lesions.

PATIENTS AND METHODS

PATIENTS: This study was carried out on 33 patients with finger pathology referred to the Radiology Department of Alexandria Main University Hospital from January 2024 to January 2025.
METHODS:
Patients were subjected to history taking, clinical examination & closed magnet MRI examination for the handin different planes (axial, sagittal and coronal) with different sequences including T1WI, T2WI, PDW and Fluid sensitive sequences.
The correlation between the MRI findings and clinical data including demographics, complaints, and final diagnosis was analyzed.
The correlation between the MRI findings and other available imaging modalities such as X-ray, ultrasonography or CT in some cases.

RESULTS

Table 1: MRI final diagnosis findings in the included patients (n=33)

	Total (n = 33)		Non-Trauma (n = 12)		Trauma (n = 21)	
	No.	%	No.	%	No.	%
Final diagnosis						
Giant cell tumours	5	15.15	5	41.67	0	0.00
Tendon tear	7	21.21	0	0.00	7	33.33
Tear of collateral ligament	7	21.21	0	0.00	7	33.33
Pulley system disruption	1	3.03	0	0.00	1	4.76
Tenosynovitis	3	9.09	3	25.00	0	0.00
Epidermoid	1	3.03	1	8.33	0	0.00
Bony mallet finger	1	3.03	0	0.00	1	4.76
Osteomyelitis	1	3.03	0	0.00	1	4.76
Subcutaneous foreign body	1	3.03	1	8.33	0	0.00
Fracture dislocation	1	3.03	0	0.00	1	4.76
Enchondroma	1	3.03	0	0.00	1	4.76
Trigger finger	1	3.03	1	8.33	0	0.00
Avulsion fracture	1	3.03	0	0.00	1	4.76
Fibroma	1	3.03	1	8.33	0	0.00
Neuroma	1	3.03	0	0.00	1	4.76

Table 2: Comparison between Non-Trauma and Trauma according to complementary study for diagnosis

	Total (n = 33)		Non-Trauma (n = 12)		Trauma (n = 21)		χ^2	^{MC}p
	No.	%	No.	%	No.	%		
Complementary study for diagnosis								
Not needed	17	51.5	3	25.0	14	66.7	11.212*	0.002*
US	12	36.4	9	75.0	3	14.3		
X-ray	2	6.1	0	0.0	2	9.5		
CT	2	6.1	0	0.0	2	9.5		

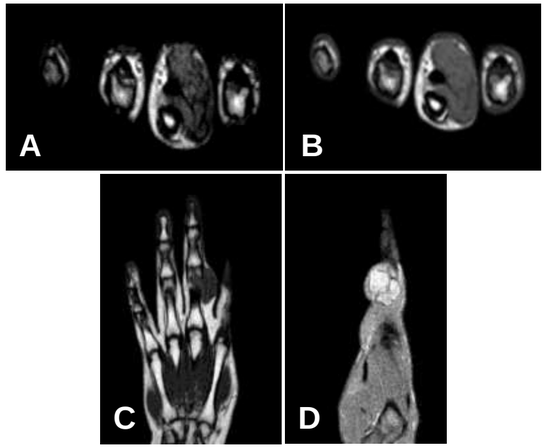

Figure (1):29-year-oldFemale patient, complaining of painless slowly growing mass at the ventral aspect of the middle finger of the right hand.Axial T2WI (A), axial T1WI (B), coronal T1WI (C) sagittal PDW (D) weighted imaging of the right middle finger at the ventral aspect of the proximal phalanx and proximal interphalangeal joint (PIP) (white arrow) located superficial and deep to the flexor tendon. Proved to be Giant cell tumor of the flexor tendon sheath of the right middle finger

CONCLUSION

MRI is a safe and accurate modality for assessing the definite cause of finger pathologyparticularly in trauma-related cases
Ultrasound was useful as a complementary tool in selected non-traumatic and superficial cases.
A multimodality imaging approach, guided by clinical presentation, often provides the most comprehensive evaluation, particularly in non-traumatic conditions.