ROLE OF MAGNETIC RESONANCE IMAGING IN DIAGNOSIS OF CHRONIC NON TRAUMATIC WRIST PAIN

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Introduction

Worldwide, musculoskeletal pain (including chronic wrist pain) is a very common and crucial medical issue. Magnetic resonance imaging (MRI) is commonly used tool to noninvasively examine the anatomy and pathology of the wrist joint, 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 wrist pain by demonstrating a broad spectrum of osseous and soft tissue abnormalities such as avascular necrosis, triangular fibrocartilage complex tears, ligamentous tears, ganglion cysts, carpal tunnel syndrome and osteoarthritis. Knowledge of the imaging anatomy of the wrist is essential for reporting MRI. This familiarity should include the carpal bones, tendons (extensor and flexor compartments), triangular fibrocartilage complex, intrinsic & extrinsic ligaments and nerves especially the median & ulnar nerves.

Aim of the work

The aim of the study was to assess the role of the magnetic resonance imaging in evaluation of chronic non traumatic wrist pain.

Patients and Methods

PATIENTS:

This study was carried out on 30 patients with chronic non traumatic wrist pain referred to the Radiology Department of Alexandria Main University Hospital from January 2023 to January 2024.

METHODS:

Patients were subjected to history taking, clinical examination & closed magnet MRI examination for the wrist in 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, site of pain, and final diagnosis was analyzed.

•The correlation between the MRI findings and other available imaging modalities as X-ray, ultrasonography or CT in some cases.

Results

Among 30 patients included in this study, the most common etiology of wrist pain was tenosynovitis (23.3%) followed by kienbock's (20%), rheumatoid arthritis (16.7%), ulnar abutment syndrome(13.3%), carpal coalition (10%), ganglion (10%),carpal boss (6.7%), ulnar styloid impaction, madelung deformity and median nerve neurofibroma (3.3%).

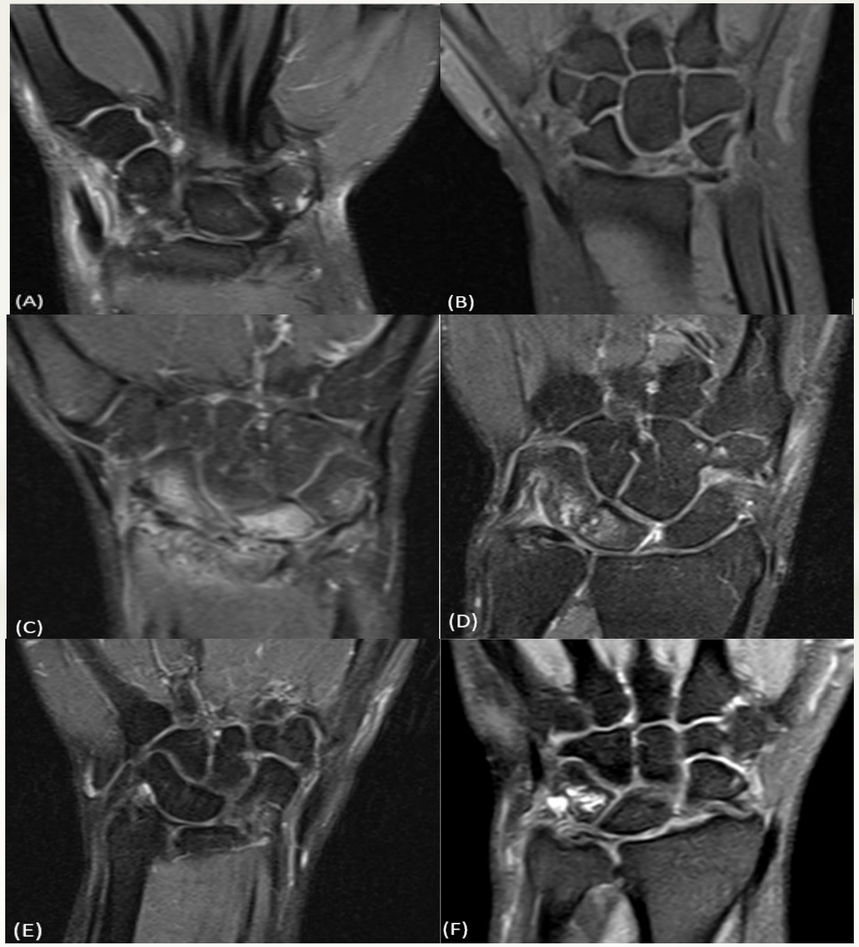

Figure 1:
Coronal PD with fat suppression images demonstrating the most frequent patterns of MRI in patients with chronic non traumatic wrist pain. **A-** De Quervian tenosynovitis. **B-** Kienbock's disease. **C-** Rheumatoid arthritis. D- Ulnar impaction syndrome. E- Carpal coalition. F- Ulnar styloid impaction syndrome.

Table1: MRI final diagnosis findings in the included patients (n=30)

Final diagnosis	No.	%
Tenosynovitis	7	23.3
- De Quervian's	2	6.7
- Proximal intersection syndrome	1	3.3
- Distal intersection syndrome	1	3.3
- ECU tenosynovitis	2	6.7
- ECR tenosynovitis	1	3.3
Rheumatoid arthritis	5	16.7
Bony lesions	17	56.7
- Kienbock's disease	6	20.0
- Ulnar abutment syndrome	4	13.3
- Carpal coalition	3	10.0
- Carpal boss	2	6.7
- Ulnar styloid impaction	1	3.3
- Madelung deformity	1	3.3
Ganglion	3	10.0
Median nerve neurofibroma	1	3.3

Conclusion

•MRI is a safe and accurate modality for assessing the definite cause of non-traumatic wrist pain.

•X-ray and ultrasonography should be used as the initial imaging modalities in patients with chronic non traumatic wrist pain.

•MRI is a real tool that plays a fundamental role in diagnosing patients with inconclusive or misleading clinical presentations.