



Role of MRI in the Evaluation of Anterior Knee Pain

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿وَعَلَّمَكَ مَا لَمْ تَكُنْ تَعْلَمُ وَكَانَ

فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا﴾

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List of Contents

| Title | Page No. |
|---|----------|
| List of Abbreviations | 5 |
| List of Tables | 6 |
| List of Figures | 7 |
| Abstract | 13 |
| 1- Introduction & Aim of the work | 1 |
| Review of Literature | |
| 2- Gross Anatomy of the Knee Joint | 16 |
| 3- Technique and Normal Anatomy of Knee MRI | 32 |
| 4- Different Etiologies of Anterior Knee Pain and Their MRI Findings | 47 |
| 5- Patient and Methods | 84 |
| 6- Results | 89 |
| 7- Case Presentation | 100 |
| 8- Discussion | 123 |
| 9- Summary & Conclusion | 135 |
| References | 137 |
| Arabic Summary | — |

List of Abbreviations

| Abb. | Full term |
|------------|---------------------------------|
| ACL | Anterior cruciate ligament |
| AKP | Anterior knee pain |
| CP | Chondromalacia patella |
| FFE | Fast field echo |
| FOV | Field of view |
| FSE | Fast spin echo |
| IPB | Infrapatellar bursitis |
| ITB | Iliotibial band |
| LCL | Lateral collateral ligament |
| LTJ | Lateral trochlear inclination |
| MCL | Medial collateral ligament |
| MPS | Mediopatellar plica syndrome |
| MRI | Magnetic resonance imaging |
| OSD | Osgood Schlatter disease |
| PA | Patella alta |
| PCL | Posterior cruciate ligament |
| PD | Proton density |
| PFPS | Patella femoral pain syndrome |
| PPB | Prepatellar bursitis |
| PT | Patellar tendinitis |
| QT | Quadriceps tendon |
| SE | Spin echo |
| SI | Signal intensity |
| SLJ | Sendig–Larson–Johansen syndrome |
| STIR | Short time inversion recovery |
| TE | Time of echo |
| TR | Time of repetition |

List of Tables

| Table No. | Title | Page No. |
|--------------------|---|----------|
| Table (1): | MRI sequences parameters on high field strength scanners. | 33 |
| Table (2): | Grading of Chondromalacia patella | 54 |
| Table (3): | Classification of trochlear dysplasia | 63 |
| Table (4): | The descriptive statistics of the age of the patient's sample. | 89 |
| Table (5): | Distribution of the sample according to sex. | 89 |
| Table (6): | Percentages of the prevalence of different causes of AKP by sex. | 91 |
| Table (7): | Demonstrates overlapping between patients who have more than one disease. | 92 |
| Table (8): | Demonstrates percentage of sex prevalence among different diseases. | 93 |
| Table (9): | Demonstrates percentage of prevalence of different grades of chondromalacia patella. | 95 |
| Table (10): | Demonstrates percentage of different grades of trochlear dysplasia among the patients with patellar instability. | 96 |
| Table (11): | Demonstrates percentage of patellar instability and transient patellar dislocation 66.7% and 33.3% respectively out of total number of patellar dislocation. | 97 |
| Table (12): | Demonstrates the statistically calculated minimum, maximum, median and mean values of trochlear groove depth by (mm), trochlear facet asymmetry by (%) and lateral inclination angle by (°). | 98 |

List of Figures

| Fig. No. | Title | Page No. |
|---------------------|--|----------|
| Figure (1): | Femorotibial joint..... | 17 |
| Figure (2): | Sagittal section of the knee..... | 19 |
| Figure (3): | Ligaments around the knee..... | 21 |
| Figure (4): | Sagittal section in flexion showing both menisci..... | 25 |
| Figure (5): | Illustrative diagram of knee bursae. | 28 |
| Figure (6): | Normal medial and lateral Menisci. A,B) Sagittal sections..... | 40 |
| Figure (7): | Normal Cruciate Ligaments | 41 |
| Figure (8): | Axial proton density fat saturation view shows both normal anterior cruciate ligament and posterior cruciate ligament. | 41 |
| Figure (9): | Normal patellar and quadriceps tendons. | 42 |
| Figure (10): | Coronal proton density weighted MR images with fat saturation demonstrates the LCL | 43 |
| Figure (11): | Coronal T2 weighted MR image with fat saturation shows the superoinferior extent of the MCL | 44 |
| Figure (12): | Axial T1 weighted MR image shows patellar retinacula, cruciate ligaments and periarticular tendons..... | 46 |
| Figure (13): | A) Sagittal STIR and B) PD WIs of the knee with lateral joint-line tenderness following a knee injury..... | 50 |
| Figure (14): | A) Sagittal STIR WI and B) PDWI of the knee in a patient with chronic osteochondral injury, demonstrating the absence of a bone marrow edema pattern. Remodelling of the underlying subchondral bone (arrows) results in proud bone anteriorly and depression..... | 51 |

List of Figures cont...

| Fig. No. | Title | Page No. |
|---------------------|---|----------|
| Figure (15): | A) Sagittal STIR WI and B) PDWI demonstrate characteristic transchondral fractures | 52 |
| Figure (16): | A) Coronal T1WI and B) sagittal STIR WI demonstrate large unstable osteochondritis dissecans lesion | 53 |
| Figure (17): | Chondromalacia patella grade I | 55 |
| Figure (18): | Chondromalacia patella grade II | 55 |
| Figure (19): | Chondromalacia patella grade III | 56 |
| Figure (20): | Chondromalacia patella grade IV | 56 |
| Figure (21): | A) Sagittal T1 and B) sagittal fat suppressed T2WI demonstrating edema involving a significant portion of the infrapatellar fat pad | 58 |
| Figure (22): | Osgood Schlatter disease | 60 |
| Figure (23): | Non-resolved Osgood Schlatter lesion | 60 |
| Figure (24): | Patellar dislocation (relocated) A-D) Axial fat-suppressed PD and E) coronal PDWI shows evidence of recent lateral patellar dislocation with bone contusions in the medial patella (white arrow) and lateral femoral condyle (asterisk) | 62 |
| Figure (25): | Four types of trochlear dysplasia | 63 |
| Figure (26): | Lateral trochlear inclination assessed on axial fat-saturated T2-weighted MR images | 66 |
| Figure (27): | Trochlear facet asymmetry assessed on axial fat-saturated T2-weighted MR images | 66 |
| Figure (28): | Trochlear depth assessed on axial fat-saturated T2-weighted MR images | 67 |
| Figure (29): | Patella Alta and maltracking | 68 |

List of Figures cont...

| Fig. No. | Title | Page No. |
|---------------------|---|----------|
| Figure (30): | MRI image demonstrates how to assess patella Alta depending on Insall -Salvati ratio. | 69 |
| Figure (31): | Patellar tendinosis. Sagittal PD FSE demonstrates severe proximal patellar tendinosis with slight expansion of the tendon and surrounding edema | 70 |
| Figure (32): | Patellar tendon rupture. Sagittal PD FSE shows rupture of patellar tendon with preexisting patellar tendonitis..... | 71 |
| Figure (33): | Pes anserinus bursitis. Sagittal STIR MR image shows the distension of the bursa (arrow) filled with hyperintense synovial pannus | 72 |
| Figure (34): | Pes anserine bursitis | 73 |
| Figure (35): | Prepatellar bursitis..... | 74 |
| Figure (36): | Hemorrhagic prepatellar bursitis..... | 75 |
| Figure (37): | Hemorrhagic deep infrapatellar bursitis | 76 |
| Figure (38): | Mediopatellar plica syndrome A,C) Axial, B) Sagittal T2, and D) Sagittal fat suppressed weighted images demonstrating mediopatellar plica that has a shelf-like appearance and covers the anterior aspect of the medial femoral condyle | 78 |
| Figure (39): | Quadriceps tendinosis..... | 79 |
| Figure (40): | Distal quadriceps tendon rupture | 80 |
| Figure (41): | Sending-Larson-Johansen disease | 82 |
| Figure (42): | Bipartite patella | 83 |
| Figure (43): | Sex distribution of the sample according to sex. | 90 |
| Figure (44): | Percentage of different AKP types among males and females..... | 91 |

List of Figures cont...

| Fig. No. | Title | Page No. |
|---------------------|--|----------|
| Figure (45): | The percentages of prevalence of the 11 diseases by sex..... | 94 |
| Figure (46): | The percentage of prevalence of different grades of chondromalacia patella..... | 95 |
| Figure (47): | Demonstrates percentages of different grades of trochlear dysplasia among the patients with patellar instability. | 96 |
| Figure (48): | Demonstrates percentage of patellar instability and transient patellar dislocation 33.3% and 66.7% respectively out of total number of patellar dislocation..... | 97 |
| Figure (49): | Demonstrates the statistically calculated minimum, maximum, median and mean values of trochlear groove depth by (mm), trochlear facet asymmetry by (%) and lateral inclination angle by (°)..... | 99 |
| Figure (50): | A-Sagittal proton density, B-sagittal STIR and C-Axial STIR show fragmented tibial tuberosity, with associated bone marrow edema..... | 101 |
| Figure (51): | A- Axial T2, B-Axial PD SPIR, C-Axial PD SPIR, D-Sagittal PD SPIR and E-Sagittal PD SPIR show bilateral chondromalacia patellae denoted by articular cartilage disruption and extension to underlying subchondral bone marrow edema pattern changes..... | 103 |

List of Figures cont...

| Fig. No. | Title | Page No. |
|---------------------|---|----------|
| Figure (52): | A-Sagittal PD, B-Sagittal T2, C-Sagittal PD SPIR and D-Axial PD SPIR demonstrate 5x2.5 cm enlarged superficial infrapatellar bursa is noted showing mild synovial proliferation with mild surrounding subcutaneous edema denoting subacute bursitis and minimal joint effusion is seen reaching the lateral recess..... | 105 |
| Figure (53): | A-Coronal T1, B-Coronal proton density SPIR, C-Coronal proton density SPIR, D-Sagittal T1 and E-Axial Proton density SPIR show Tricompartamental osteoarthritis showing marginal articular osteophytosis and thinning of the lining articular cartilages most appreciated at medial compartment with narrowed joint space with stress induced subchondral marrow edema is noted at the opposing surfaces of the medial femoral and tibial condyles with degenerative tear of the body and PHMM shows increased intra substance signal with indistinct boundaries with mucoid degeneration of the ACL..... | 107 |
| Figure (54): | A-Sagittal PD, B-Sagittal PD SPIR, C-Axial T2 and D-Axial SPIR Demonstrates marked joint effusion and lateral patellar dislocation with irregular medial border, thinned articular cartilage..... | 109 |
| Figure (55): | A-Sagittal PD, B-Sagittal PD SPIR, C-Axial T2 and D-Axial SPIR Demonstrate moderate knee effusion mainly seen within the distended suprapatellar recess with focal synovial thickening..... | 111 |

List of Figures cont...

| Fig. No. | Title | Page No. |
|---------------------|--|----------|
| Figure (56): | Sagittal T1 demonstrates a high riding patella with patellar tendon/height ratio = 1.36 denoting patella Alta with minimal effusion is noted..... | 112 |
| Figure (57): | A-Axial PD SPIR, B-Axial PD SPIR and C-Sagittal PD SPIR demonstrate the lower part of the patella and anterior part of the medial femoral condyle show BM edema/contusion displaying high signal in SPIR images with mild joint effusion..... | 114 |
| Figure (58): | A-Coronal T1, B-Coronal T1, C-Axial T2 and D-Coronal STIR demonstrate an area of bone contusion noted in the lower lateral femoral condyle manifested by increased signal on STIR images. | 116 |
| Figure (59): | A-Sagittal T2, B- Sagittal proton density SPIR, C- Sagittal proton density SPIR, D- Axial proton density SPIR and E- Axial proton density SPIR show focal edema seen at the superior aspect of the Hoffa pad of fat with minimal joint effusion. | 118 |
| Figure (60): | A- Coronal T1, B- Coronal proton density SPIR, C- Coronal proton density SPIR and D- Coronal proton density SPIR show small osteochondral defect seen in the medial femoral condyle with sprained MCL..... | 120 |
| Figure (61): | A- Sagittal proton density, B- Sagittal T2, C- sagittal Proton density SPIR, D- Sagittal Proton density SPIR and E- Axial T2 show partial thickness tear of the quadriceps tendon with skin and subcutaneous tissue edema and minimal joint effusion. | 122 |

Abstract

This study included 20 patients (no sex predilection). All presented by anterior knee pain and were referred to radio-diagnosis department of Ain Shams University hospital or private centers for MRI examination. The preliminary results have shown the great role of MRI in the diagnosis of different pathological conditions causing anterior knee pain and in guiding further clinical management.

Key Words: *MRI- Anterior knee pain)*

1- Introduction & Aim of the work

Anterior knee pain (AKP) is the most common knee complaint, usually occurring in adolescents and young adults (*Collado and Fredericson, 2010*).

It is more common in athletic individuals, with the incidence rate as high as 9% in young active adults and comprises up to a quarter of all knee problems treated at sports injury clinics (*Witvrouw et al., 2000*). AKP may cause chronic disability, limited sports participation, and may affect quality of life. Despite its prevalence, AKP remains poorly understood, as it has not been well studied in the literature, making its treatment one of the most complex among the various pathologies affecting the knee (*Biedert and Sanchis-Alfonso, 2002*).

Magnetic resonance imaging (MRI) in the recent decades has become the gold standard imaging modality for different knee pathologies as it is safe, and RF pulses used in MRI do not cause ionization.

With MRI, we can obtain direct coronal and oblique image which is impossible with radiography and CT. Particularly useful for the scanning and detection of abnormalities in soft tissue structures like the cartilage tissues, tendons, and ligaments. MRI also can help determine which patients with knee injuries require surgery. MR imaging is

recognized as a standard procedure and has replaced diagnostic arthroscopy as the primary diagnostic modality for many knee pathologies. Moreover, MR images can be used to assess anatomic variants that may contribute to chronic patellar instability (*Escala et al., 2006*).

Aim of the Work

The main objective of our work is to review several of the most common causes of AKP, with emphasis on their MRI findings with the goal of allowing more accurate diagnosis and grading of some of the most common pathologies, for understanding, better treatment and improvement of this common complaint.