Cairo University
Faculty of Medicine

ROLE OF MRI IN EVALUATION OF ANTERIOR KNEE PAIN

Thesis

Submitted for partial fulfillment of Master Degree in Radiodiagnosis

By
Sara Ibrahim Abd El_Aziz Sakr
(M.B.B.Ch, M.Sc)

Supervisors
Prof. Dr. Khaled Mohamed El Shantely
Professor of Radio-diagnosis,
Faculty of Medicine- Cairo University

Dr. Talaat Ahmed Hassan
Lecturer of Radio-diagnosis,
Faculty of Medicine- Cairo University

Dr. Sherif Galal Mohamed
Lecturer of orthopedic surgery,
Faculty of Medicine- Cairo University

Cairo University
2014 - 2015

Acknowledgement

*My endless and everlasting, thanks to **Allah**, to whom I relate any success in achieving any work in my life.*

*I would like to express my deepest gratitude and extreme appreciation to **Prof. Dr. Khaled Mohamed El Shantely,** professor of Radio_diagnosis, Faculty of Medicine, Cairo University for his kind supervision throughout the whole work which could not be a fact, without his guidance and kind help.*

*I would like to express my great thanks and gratitude to **Dr. Talaat Hassan**, lecturer of Radio_diagnosis, Faculty of Medicine, Cairo University whom I overloaded too much throughout the whole work, he provided me with continuous advice and help for completion of this work.*

*Also I would like to send special thanks for **Dr. Sherif Galal Mohamed,** lecturer of orthopedic surgery, Faculty of Medicine, Cairo University, for his great support, and valuable assistance throughout the whole work.*

*I' m also very grateful and thankful for the **patients** who were included in this study, for their great role in bringing out this thesis and further helping other patients in their treatment.*

*Last and not least I would like to express my respect and my deepest appreciation to my **Family especially my Mother, my Father and my Sisters** for their assistance, encouragement and their prayers for me.*

Abstract

This study included 70 patients (46 female and 24 male). Their ages ranged between 10-60 years (average age 30 years). All presented by anterior knee pain and were referred to radio-diagnosis department of Cairo 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*)

Contents

List of Abbreviations

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
LTI	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	Sinding–Larsen–Johansson syndrome
STIR	Short time inversion recovery
TE	Time of echo
TR	Time of repetition

List of Tables

List of Figures

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.