ROLE OF MR IMAGING IN DIAGNOSIS OF SYNOVIAL LESIONS AROUND THE KNEE

An Essay
Submitted for Fulfillment of the Master Degree in
Diagnostic Radiology

Presented
By

Mohammed Ramadan Abd El-Aziz
M.B.B.Ch. Ain Shams University

Supervised
By

Dr. Faten Mohammed Mahmoud Kamel
Prof. of Diagnostic Radiology
Faculty of Medicine
Ain Shams University

Dr. Remon Zaher Ilia
Lecturer of Diagnostic Radiology
Faculty of Medicine
Ain Shams University

Faculty of Medicine
Ain Shams University
2012

Contents

List of Abbreviations

MRI → magnetic resonance imaging
ACL→ anterior cruciate ligament
PCL→ posterior cruciate ligament
SE→ spin echo
FSE→ fast spin echo
CT → computed tomography
STIR→ short tau inversion recovery
SNR→ signal to noise ratio
PD→ proton density
PVNS→pigmented villonodular synovitis
TCL→ tibial collateral ligament
MCL→ medial collateral ligament
DESS→ double echo steady state
SMTCL→ semimembronasus tibial collateral ligament
FCL→ fibular collateral ligament
PTFJ→ proximal tibiofibular joint
RA→ rheumatoid arthritis

List of Figures

بسم الله الرحمن الرحيم

﴿قَالُواْ سُبحانَكَ لا عِلمَ لَنَا إِلا مَا عَلَّمتنا
إِنَّكَ أَنتَ العَلِيمُ الْحَكِيمُ﴾

سورة البقرة (آية ٣٢)

Acknowledgements

First and foremost, thanks to ***Allah*** who gave me the ability to complete this work.

I wish to express my sincere and deepest gratitude and appreciation to ***Prof .Dr. Faten Mohammed Mahmoud Kamel,*** professor of radiodiagnosis, faculty of medicine, Ain Shams University, for her generous help and extreme kindness. In fact, it has been a great honor to work under her supervision.

I would like to express my gratitude to ***Dr. Remon Zaher Ilia*** , assistant professor of radiodiagnosis, faculty of medicine, Ain Shams University for his help and his useful suggestions.

I would like to thank all professors and my friends of radiodiagnosis at ***Maadi Armed Forces Hospital*** for their endless support and generous help.

Finally , my truthful gratitude to ***my parents*** who gave me too much and received too little and to ***my lovely child NADA*** .

Dr. Mohamed Ramadan

Introduction

Disorders of the knee are responsible for a major source of referrals to the musculoskeletal radiologists. Most cases have suspected abnormalities within the joint either following an acute injury or a more insidious development of symptoms. Other common causes of referral are anterior knee pain, focal and diffuse swellings. MRI is the technique of choice for assessing the internal structures ***(Ostlere, 2003).***

Synovial disorders often affect the knee joint and are a common cause of morbidity. Before MR imaging, radiologists were limited in their ability to provide information about the presence or absence of synovial disease. With the advent of MR imaging, useful information can now be provided to referring clinicians, often at a time when the initiation of therapy may mitigate significantly the long term sequelae of synovial disorders. MR imaging owing to its superior soft tissue contrast, is the imaging modality of choice for demonstrating and quantifying pathologic changes of the