بسم اللّه الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالأصل

MAGNETIC RESONANCE IMAGING (MRI) IN THE DIAGNOSIS OF TRAUMATIC LESIONS OF THE KNEE

THESIS
SUBMITTED FOR PARTIAL FULFILLMENT OF THE
MASTER DEGREE IN RADIODIAGNOSIS

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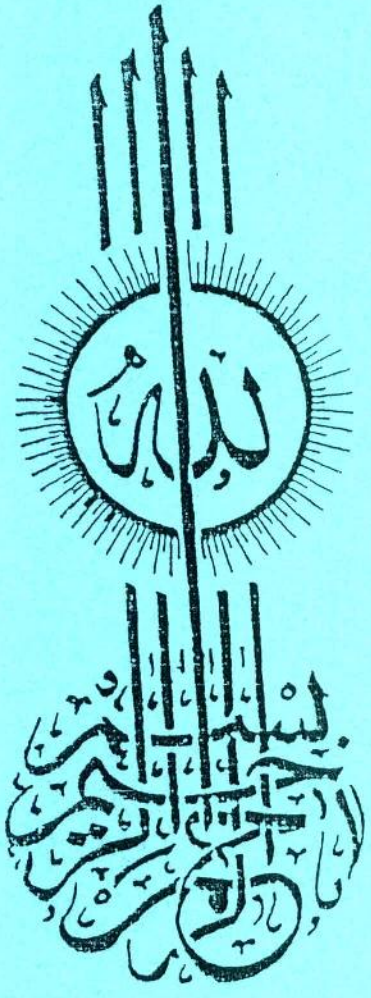
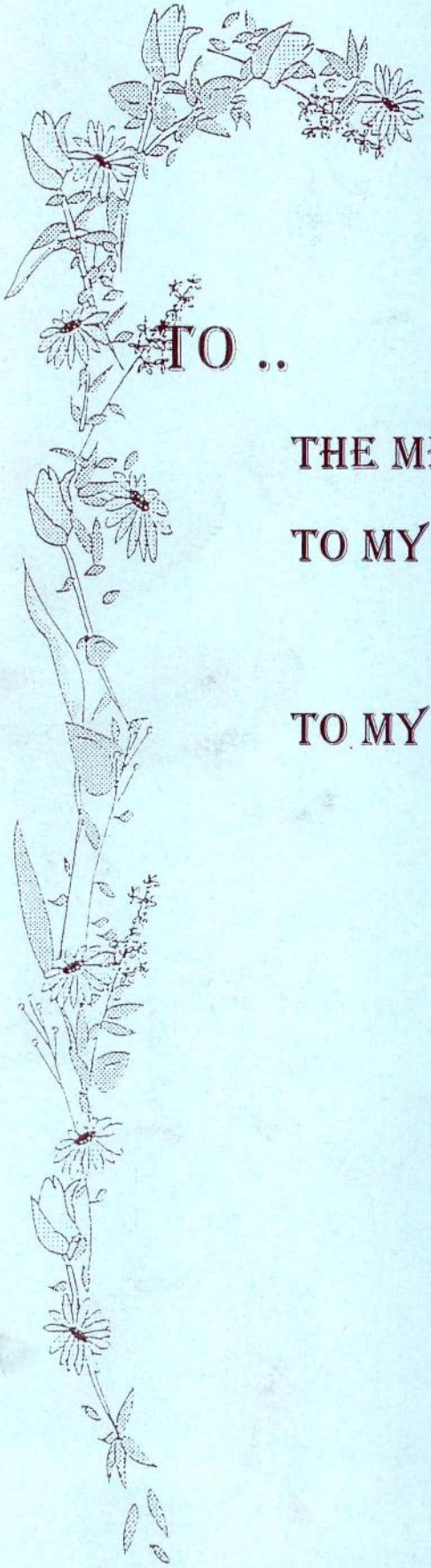


« وعلمك ما لم تكن تعلم وكان فضل الله عليك عظيما »

صدق الله العظيم

« من الآية ١١٣ سورة النساء »



TO ..

THE MEMORY OF MY FATHER

TO MY DEAR MOTHER

AND

TO MY WIFE AND SALMA

Mohammed Koriem Mahmoud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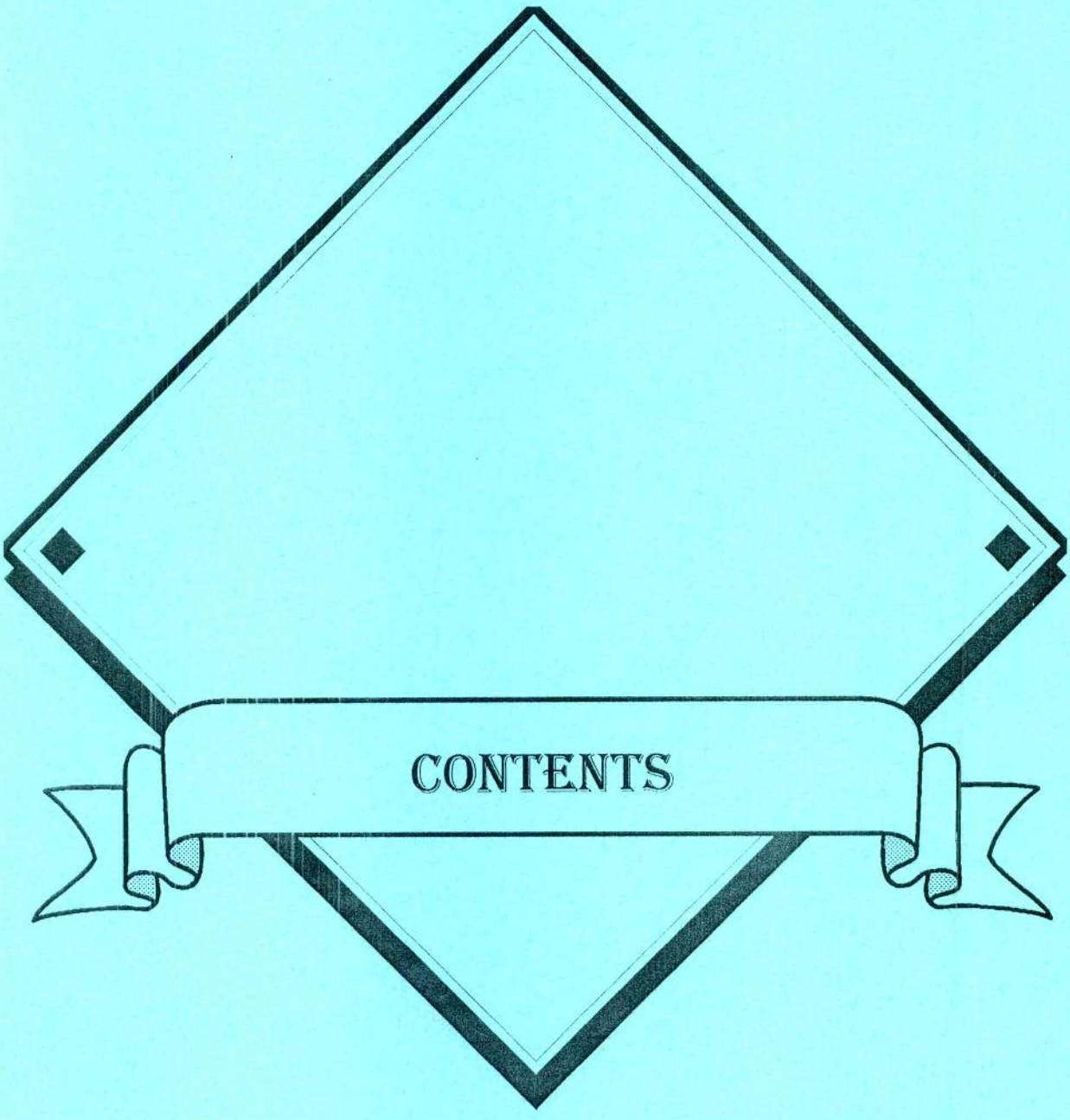

CONTENTS

CONTENTS

INTRODUCTION & AIM OF WORK

INTRODUCTION AND AIM OF THE WORK

In the past years magnetic resonance imaging (MRI) of the knee has become the most commonly performed nonneurologic MR examination and has completely replaced knee arthrography as a diagnostic tool in most institutions(109). The use of MRI as a noninvasive screening method has also helped to shift the role of arthroscopy from diagnosis toward therapeutic intervention. The examination is easy to perform and is well tolerated by almost all patients, with the exception of those with known contraindications to MRI. Claustrophobia is rarely a significant problem, as the patient's head may remain outside the magnet during the examination.

MRI advantages include excellent tissue contrast, multiplaner imaging capability, and absence of ionizing radiation. Because many of the knee important structures are in a relatively superficial location, the knee can be examined with small-diameter surface coils. These coils greatly improve the signal-to-noise ratio, which in turn can be used to improve spatial resolution, to decrease the slice thickness, or to shorten the examination time by reducing the necessity for signal averaging. Also the non invasive nature of MRI has facilitated evaluation of even acutely traumatized patients. The ability to display anatomic features of the knee in direct multiplanar, and oblique orientations has enhanced the use of MR in the assessment of trauma (34). The inherently superior soft tissue resolution of MR has facilitated direct visualization and differentiation of cortex, marrow, ligaments, tendons, muscle, synovium, vascular, and cartilage elements, not possible using conventional radiographic techniques.

Within a decade of its clinical introduction, MRI became the imaging procedure of choice for meniscal pathology in the knee. In fact, the early

success for the menisci promote muskuloskeletal MR imaging from a new modality largely used to diagnose marrow abnormalities to its present position as the primary noninvasive technique for joint imaging. Today, MRI of the menisci remains one of the most efficient uses of the technology. Although MRI certainly has a role in evaluating muscle, tendon, and ligament pathology in the knee, clinical assesment still determines therapy. Few surgeons would reconstruct a ligament in an asymptomatic patient simply because it appears torn on an MR imaging study, and conversely an unstable knee will likely need treatment, regardless of its MRI appearance. The MRI evaluation of articular cartilage, although improving, is not yet reliable enough to dictate therapy(76).

Acute injuries to the cruciate ligaments of the knee are very common, particulary among competitive athletes (78,161).

Experienced clincians on clinical examination will be able to obtain most of the information required (161). However, difficulty in assessing the extent of an injury, especially in the acute setting, even under anaesthesia may exist. In this situation patient pain and spasm prevent adequate examination. So where available, MRI has generally replaced diagnostic arthroscopy (102).

The aim of this work is to demonstrate the application of MRI in the evaluation of the various protocols of examination.

Our study also aim at demonstrating MRI features in traumatic lesions of the knee joint, pitfalls in interpretation, common clinical problems in MR imaging of the knee, and also the different ways to avoid their misinterpretation.