

دور الموجات الصوتية عالية التباين في تشخيص إصابات الغضاريف الهلالية والأربطة الصليبية لمفصل الركبة

رسالة

توطئة للحصول على درجة الدكتوراه في الأشعة التشخيصية

مقدمة من

طبيب/ تامر على أبو السعود القصاص
ماجستير أشعة تشخيصية

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2013

Role Of High Resolution Ultrasound In The Diagnosis Of Meniscal And Cruciate Ligaments Injuries Of The Knee Joint

Thesis

Submitted In Partial Fulfillment
Of Medical Doctorate Degree (M.D.) In
Diagnostic Radiology

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2013

Acknowledgement

First and foremost, praise and thanks are to Allah, the most merciful and compassionate, who permitted the completion of this piece of work,

I am honored to have Prof.Dr. Mohamed Abdel-Aziz, Prof. of Radiology, Faculty of Medicine, Ain Shams University, as a supervisor of this work, I am so grateful and most appreciative to his efforts. No words can express what I owe him for his endless patience and continuous advice and support.

I am deeply thankful to Ass.Prof.Dr. Enas Azab, Assistant Professor of Radiology, Faculty of Medicine, Ain Shams University for her great help and valuable advices. I was much honored to work with her.

I am deeply grateful to technicians and to all cases who participated in the study for their help and cooperation.

Finally, I would like to thank my family who were very supportive, cooperative, understanding and encouraging.

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LIST OF ABBREVIATIONS

ACL	Anterior cruciate ligament
AHLM	Anterior horn of lateral meniscus
AHMM	Anterior horn of medial meniscus
LCL	Lateral collateral ligament
MCL	Medial collateral ligament
PCL	Posterior cruciate ligament
PHLM	Posterior horn of lateral meniscus
PHMM	Posterior horn of medial meniscus

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 (*Ostlere, 2003*).

Musculoskeletal sonography is a widely accepted and available tool in Europe and other parts of the world, and it is often the principal technique performed for many clinical indications. A clear understanding of knee joint position and scanning plane as well as the normal sonographic anatomy is required to ensure optimal patient care (*Khoury V. et al., 2007*).

Ultrasonography is able to examine different structures of the knee joint, including the tendons, ligaments, muscles, nerves, bursae, synovial space and articular cartilage. Adjustment of color and power flow Doppler is essential for evaluation of vascular lesions.

Ultrasound of the musculoskeletal system is rapidly growing in stature and utility with the advancement of high-resolution equipment and an increasing role of expertise and interest worldwide (*Wang et al., 1999*).

AIUM PRACTICE GUIDELINES 2012 mentioned that the Indications for MSK ultrasound include but are not limited to:

- A. Pain or dysfunction.
- B. Soft tissue or bone injury.
- C. Tendon or ligament pathology.
- D. Arthritis, synovitis, or crystal deposition disease.
- E. Intra-articular bodies.
- F. Joint effusion.
- G. Nerve entrapment, injury, neuropathy, masses, or subluxation.
- H. Evaluation of soft tissue masses, swelling, or fluid collections.
- I. Detection of foreign bodies in the superficial soft tissues.
- J. Planning and guiding an invasive procedure.
- K. Congenital or developmental anomalies.
- L. Postoperative or postprocedural evaluation.

An MSK ultrasound examination should be performed when there is a valid medical reason. There are no absolute contraindications (*AIUM practice guideline, 2012*).

Sonography of the knee offers the same advantages as elsewhere in the musculoskeletal system. Both extra and intra articular structures can be examined. The technique is dynamic, inexpensive and readily available; correlation can be made with the patient's point of maximal tenderness; and comparison can be readily made with the contra lateral side (*Ptasznik, 1999*).

Sonographic examination of the menisci is an easily available, non invasive imaging technique that, as a supplement to clinical findings, can be used to optimize preoperative diagnosis and to check the indication for arthroscopy (*Casser and Flistillg, 1993*).

Ultrasound examination of the knee and especially of the cruciate ligaments showed to be accurate tool in order to obtain additional information on an injured knee even if clinical examination is difficult or impossible. Sonography is able to exclude lesions of the cruciate ligaments precisely therefore it helps to restrict the necessity of acute or early arthroscopy of knee joints (*Ritzman and Weynand, 1992*).

AIM OF WORK

The aim of this work is to evaluate the role of high-resolution ultrasonography in the diagnosis of meniscal and cruciate ligaments injuries of the knee joint.