

# **Role of Magnetic Resonance Spectroscopy in Evaluation of Adnexal Lesions**

Essay

*Submitted for Partial Fulfillment of Master Degree in Radiodiagnosis*

By

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## **Introduction**

Adnexal masses are common gynecological problem in both pre- and postmenopausal women; the vast majority are benign (*Miller, 2007*).

Detection of asymptomatic ovarian cancer patients remains a major clinical challenge so Imaging has become an important adjunct to the clinical assessment of a patient with ovarian cancer, contributing to its detection, characterization, staging, treatment planning and follow-up. Imaging (*Taylor ,et al., 2001*).

Ultrasonography with color Doppler is currently the standard imaging tool for the differential diagnosis of adnexal masses, and although very sensitive in detecting these and sometimes able to indicate malignancy, it is frequently unable to provide images adequate for specific diagnosis (*Chang et al., 2002*).

Over the last two decades, advances in cross-sectional imaging, including computed tomography (CT), magnetic resonance imaging (MRI), and Positron Emission Tomography (PET) have yielded new insights into the evaluation of morphologic and functional tumor prognostic factors (*Rieber et al., 2001*).

CT has not traditionally been used in the characterization of an adnexal mass, studies have shown

that the utility of CT is equivalent to US. CT characterization of adnexal mass relies on the depiction of morphologic features of enhancing mural nodularity or heterogeneity and necrosis within the solid lesion (*Coakley et al., 2002*).

In the field of magnetic resonance there have been studies on the potential of MR spectroscopy in the characterization of adnexal lesions. The characterization is based on the biochemical metabolism that might well assist tumor grading and lead to a better understanding of the biochemical pathways found within a lesion (*Okada et al., 2001*).

When MR imaging is used, there is significantly better performance if Gadolinium contrast media is administered. The use of contrast media allows a better characterization of solid nodules within a cystic lesion or presence of necrosis within a solid lesion (*Hricak et al., 2000*).

The use of MRI in the evaluation of sonographically indeterminate adnexal lesions resulted in fewer surgical procedures, better patient triage, gynecological subspecialties and net cost savings (*Rieber et al., 2001*).

By time MR imaging are increasingly used to evaluate adnexal masses; malignancy can be predicted in some cases (*Chang et al., 2002*).

## **Aim of the Work**

- To explore the H-MR spectral features of adnexal lesion.
- To characterize the spectral patterns of various pathologic entities.

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## المقدمة

تعتبر كتل الملحقات مشكله شائعه فى امراض النساء فى السيدات قبل وبعد سن الياس و غالبا ما تكون من النوع الحميد.

ان اكتشاف اورام المبيض الغير عرضيه لهو فعلا تحد اكلينكى لهذا فان التصوير اصبح هاما للتقيم الاكلينكى لمرضى سرطان المبيض حيث انه يشارك فى اكتشاف الورم و صفاته و تصنيفه و تخطيط العلاج و المتابعه.

الاشعه التلفزيونيه بالدوبلر الملون هى اداه التصوير القياسيه للتباين التشخيصى لكتل الملحقات و بالرغم من حساسيته فى اكتشافها واحيانا قدره على الاشاره الى وجود السرطان الا انها كثيرا ما تكون غير قادره على اعطاء صوره تكفى لتشخيص محدد.

على مدار العقدين الاخيرين حدث تطور فى التصوير المقطعى و يتضمن الاشعه المقطعيه و الرنين المغناطيسى اعطى رؤيه جديده فى تقييم العوامل التقديرية الشكلية و الوظيفيه للورم.

ليس التقليدى استخدام الاشعه المقطعيه فى وصف كتل الملحقات و الدراسات اوضحت ان استخدام الاشعه المقطعيه معادل لاستخدام الاشعه التلفزيونيه ويعتمد وصف الاشعه المقطعيه لكتل الملحقات على الخصائص الشكلية للعقد الجداريه و تغاير الخواص والنخر فى الاورام الصلبه.

فى مجال الرنين المغناطيسى هناك دراسات حول قدره الرنين المغناطيسى الطيفى على وصف كتل الملحقات هذا الوصف يعتمد على الايض الكيمايى و التى ربما تساعد على تصنيف الورم وتؤدى الى فهم الطرق الكيماييه الموجوده داخل الورم.

عند استخدام التصوير بالرنين المغناطيسى، نجد أفضل أداء له فى حالة استخدام أوساط جاد و لينيوم التباينية و يتيح استخدام الأوساط التباينية تمييزاً جيداً

للعقيدات الصلبة داخل آفة حوصلية، أو وجود نخر داخل آفة صلبة في حالة تمييز كتل الملحقات.

أن استخدام التصوير بالرنين المغناطيسي في تقييم آفات الملحقات غير المحددة بواسطة الموجات الصوتية نتج عنها إجراءات جراحية أقل، وفرز أفضل للمريض، والتخصصات النوعية في أمراض الجهاز التناسلي الأنثوي وتوفير صافي واضح في الإنفاق .

مع الوقت يتزايد استخدام الرنين المغناطيسي في تقييم كتل الملحقات كما يمكن التنبؤ بالسرطان في بعض الحالات

# دور الرنين المغناطيسى الطيفى فى تقييم افات ملحقات الرحم

رساله

توطئة للحصول على درجة الماجستير

فى الاشعة التشخيصية

مقدمه من

الطبيبة / دعاء محمد البكرى  
بكالوريوس الطب والجراحة

تحت اشراف

الدكتورة/ مروة ابراهيم محمد

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جامعة عين شمس

2007

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(وَعَلَّمَكَ مَا لَمْ تَكُنْ  
تَعْلَمُ وَكَانَ فَضْلُ اللَّهِ  
عَلَيْكَ عَظِيمًا)

صدق الله العظيم



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