

***Liver Imaging Reporting and Data  
System (LI-RADS) Classification for  
Diagnosis of Hepatocellular  
Carcinoma***

*Essay*

**Submitted for partial fulfillment of Master degree  
in Radiodiagnosis**

*Presented by*

**Shaymaa Salah Abd El-Hamid Saadallah**

***M.B.B.Ch.***

***Faculty of Medicine - Ain Shams University***

*Under Supervision of*

**Prof. Dr. Ahmed Mohamed Monib**

***Professor of Radiodiagnosis***

***Faculty of medicine, Ain Shams University***

**Dr. Yosra Abdelzaher Abdullah**

***Assistant Professor of Radiodiagnosis***

***Faculty of medicine, Ain Shams University***

**Faculty of Medicine  
Ain Shams University  
2016**

# تقارير التصوير للكبد ونظام البيانات (LI-RADS) في تشخيص أورام الكبد السرطانية

رسالة

توطئة للحصول علي درجة الماجستير  
فى الأشعة التشخيصية

مقدمة من

الطبيبة/ شيماء صلاح عبد الحميد سعد الله  
بكالوريوس الطب والجراحة  
كلية الطب - جامعة عين شمس

تحت إشراف

الأستاذ الدكتور/ أحمد محمد منيب  
أستاذ الأشعة التشخيصية  
كلية الطب جامعة عين شمس

الدكتورة/ يسرا عبد الظاهر عبد الله  
أستاذ مساعد الأشعة التشخيصية  
كلية الطب جامعة عين شمس

كلية الطب  
جامعة عين شمس  
٢٠١٦

# *Introduction*

## *Aim of the Work*

*Anatomy  
of the Liver*

***MRI Anatomy  
of the Liver***

# *Pathology of Hepatocellular Carcinoma*

***Imaging Modalities Used for  
Detection & Diagnosis of  
Hepatocellular Carcinoma***



***LI-RADS Classification  
of Hepatic Focal Lesion***

## *Summary & Conclusion*

## *References*

## ***ARABIC SUMMARY***

## *Acknowledgement*

*Praise is to ALLAH who exalted in knowledge whom he wills but above those who have knowledge there is one more knowing; the cherisher and sustainer of all what is in heaven and what is on earth. To HIM is the goal and to him is the return of all.*

*I would like to express my deepest gratitude and greatest respect to Prof. Dr. Ahmed Mohamed Monib, Professor of Radiodiagnosis, Faculty of medicine, Ain Shams University, under whose supervision I had the honor to proceed with this work his find guidance and continuous support I will always be grateful for.*

*I am deeply indebted to Dr. Yosra Abdelzaher Abdullah, Assistant Professor of Radiodiagnosis,, Faculty of Medicine, Ain Shams University her guidance and valuable scientific supervision throughout this work.*

*I would like to also thank my parents for all their love, help & encouragement.*

*Finally, I would like to thank my siblings and friends, especially my twin sister for their support.*

*Shaymaa Salah Abd El-Hamid  
2016*

# *List of Contents*

Title	Page No.
List of Tables .....	ii
List of Figures .....	iii
List of Abbreviations .....	v
Introduction.....	1
Aim of the work.....	4
Anatomy of the Liver.....	5
MRI Anatomy of the Liver.....	13
Pathology of Hepatocellular Carcinoma.....	19
Imaging Modalities Used for Detection & Diagnosis of Hepatocellular Carcinoma .....	33
LI-RADS Classification of Hepatic Focal Lesion.....	50
Summary & Conclusion .....	78
References.....	79
Arabic Summary .....	-

## *List of Tables*

Table No.	Title	Page No.
<b>Table (1):</b>	TNM staging (sixth edition) TNM-6. ....	32
<b>Table (2):</b>	Reported ADC values in different types of lesions in the liver. ....	45
<b>Table (3):</b>	Imaging Features of Observations by LI-RADS Category .....	51
<b>Table (4):</b>	Features of a Tumor within the Lumen of a Vein .....	57
<b>Table (5):</b>	Ancillary Features That Favor HCC .....	58
<b>Table (6):</b>	Ancillary Features That Favor Benignity .....	63
<b>Table (7):</b>	Examples of Definitely and Probably Benign Observations.....	76