

**EARLY PREDICTION OF LIVER  
METASTASES IN PATIENTS WITH  
COLORECTAL CARCINOMA**

*A Thesis*

**Submitted For Partial Fulfillment  
Of M.D. Degree In General Surgery**

*By*

***Mohammed Abdallah El-Said***  
M.B., B.Ch., M.Sc. (General Surgery)

*Under Supervisor of*

***Prof. Dr. Mohammed Sameh Zaki***  
Professor of General Surgery  
Faculty of Medicine - Ain Shams University

***Prof. Dr. Nabil Sayed Saber***  
Professor of General Surgery  
Faculty of Medicine - Ain Shams University

***Prof. Dr. Osama Ibrahim Seif***  
Assistant Professor of General Surgery  
Faculty of Medicine - Ain Shams University

***Prof. Dr. Mohammed Abu - El Hoda Darwiesh***  
Professor of Diagnostic Radiology  
Faculty of Medicine - Ain Shams University

1999







**EARLY PREDICTION OF LIVER  
METASTASES IN PATIENTS WITH  
COLORECTAL CARCINOMA**

***A THESIS***

**Submitted for Partial Fulfillment  
of M.D Degree In Genral Surgery**

**By**

**Mohammed Abdallah El- Said**  
M.B., Ch., M. Sc (General Surgery )

**Under Supervisor of**

**Prof. Dr. Mohammed Sameh Zaki**  
Professor of Feneral Surgery

Faculty of Midicine - Ain Shams University

**Prof .Dr. Nabil Sayed Saber**

Professor of Feneral Surgery

Faculty of Midicine - Ain Shams University

**Prof .Dr. Osams Ibrahem Seif**

Assistant Professor of Feneral Surgery

Faculty of Midicine - Ain Shams University

**Prof .Dr. Mohammed Adu - El Hoda Darwiesh**

Professor of Diagnostic Radiology

Faculty of Midicine - Ain Shams University

**1999**



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

«قالوا سبحانك لا علم لنا  
إلا ما علمتنا إنك أنت  
العليم الحكيم»

صدق الله العظيم

(البقرة آية ٣٢)



## Acknowledgement

I wish to acknowledge the man for whom I have a great deal of respect, professor doctor Mohammed Sameh Zaki, professor of general surgery, faculty of medicine, Ain-Shams University, for his guidance, encouragement, support and kind supervision.

I would like to express my sincerest gratitude and appreciation to professor doctor Nabil Sayed Saber, professor of general surgery, faculty of medicine, Ain-Shams University, who was the first one I started to learn some of the secrets of fine surgery from him. He had given me much of his valuable time and experience, without his kind guidance and valuable supervision this work would have never been achieved. I am greatly indebted for him for his kind continuous unlimited support.

I wish also to thank doctor Osama Ibrahim Seif, lecturer of general surgery, faculty of medicine, Ain-Shams University, for his unlimited help, support and encouragement. I am greatly indebted for him for all what he taught me.

I wish also to thank professor doctor Mohammed Abu-El Hoda Darwiesh, professor of diagnostic radiology, faculty of medicine, Ain-Shams University, for his unlimited help and kind support, he had contributed a lot in the radiology aspects of this work.

I wish to express my great gratitude and thanks for Dr. Sammar Kamal lecturer of biochemistry, faculty of medicine, Ain-Shams University. And my friend Dr. Mahmoud Abdul-

Wahab assistant lecturer of biochemistry, faculty of medicine, Ain-Shams University. For their great deals of efforts they had done in this work, they contributed the laboratory aspects in this work. Also my deepest gratitude goes to Dr. Maha Ahmad for her unlimited help in the radiology aspects of this work, I am greatly indebted for her unlimited help and patience.

I wish to express my greatest gratitude and sincere thanks for all my professors, consultants, specialists and colleagues. I owe most of what I had learned for all of them. For all of them I dedicate this work.

I wish to express my greatest appreciation and thanks for my family for their continuous support and encouragement.

## Errata

Number of page	Line	Wrong word	Correct word
List of contents	7	Angin	Antigen
27	24	While	White
29	3	g.	gm.
37	15	g	gm.
38	23	g.	gm.
44	1	l	l
46	7	1999	1998
47	10	n-20	n=20
67	5	Third	Second
67	6	2 patients only = 66%	1 patient = 33%
67	9	66%	33%
96	9	Post operative	Post operative
98	9	l	C. —
99	3	X	X —
99	8	X	X —
102	12	X	X —
103	8	readings CEA	CEA readings —
103	13	X	X —
104	13	X	X —
105	12	X	X —
106	12	X	X —
107	9	X	X —
107	25	P < 0.001	(P<0.001)

116	14	Third	Second
116	15	66%	33%
118	7	P 0.05	P < 0.05
119	15	Choangiocarc	cholangiocarc
		inoma	inoma
121	2	acritical	a critical
125	2	utlity	utility
125	26	sAnn	Ann.
128	5	Radiotmmuno	Radioimmuno
		ussay	assay
130	17	Dtection	Detection
131	16	masurments	measurements
134	18	Embryneal	Embryonal
136	10	Kupffer	Kupffer

## Abbreviations

$\mu$	Micron
$^{11}\text{C}$	$^{11}$ Carbon
$^{131}\text{I}$	$^{131}$ Iodine
$^{13}\text{N}$	$^{13}$ Nitrogen
$^{15}\text{O}$	$^{15}$ Oxygen
B <sub>1</sub>	Intra-operative bile sample
CBC	Complete blood count
CEA	Carcinoembryonic antigen
cm	Centimeters
CT	Computerized tomography scanning
CVP	Central Venous Pressure
Duod.	Duodenum
ECG	Electrocardiography
FBS	Fasting blood sugar
G.B	Gallbladder
gm.	gram
Hcl	Hydrochloric acid
HU	Housenfield unit
IOU and IOUS	Intra-operative ultrasonography
L	Liter
LM	Liver metastases
ml.	Milliliters
MoAbs	Monoclonal antibodies
Mol	Mole
MRI	Magnetic resonance imaging
ng	nanogram
nm	nanometer
$^{\circ}\text{C}$	Celsius
PR	Per-rectal examination
PV	Per-vaginal examination

Pv - ve	Negative predictive value
Pv + ve	Positive predictive value
RIGS	Radioimmunoguided surgery
S	Siedferg unit
S <sub>1</sub>	Intra-operative serum sample
SGOT	Serum glutamic - oxaloacetic transaminase
SGPT	Serum glutamic - Pyruvic transaminase
TC	Technetium
U/S	Ultrasonography

## *List of Contents*

	Page
<b>Introduction and Aim of the Work</b>	1
<b>Review of Literature</b>	3
• Colorectal cancer	3
• Tumor markers	5
• Clinical uses of tumor markers	13
• Carcinoembryonic antigen	16
• Diagnosis of metastatic liver disease	25
<b>Patients and Methods</b>	47
<b>Results</b>	60
<b>Discussion</b>	108
<b>English Summary</b>	116
<b>References</b>	119
<b>Arabic Summary</b>	

