

# الأساليب الحديثة في تشخيص وعلاج سرطان المستقيم

رسالة توطئة للحصول علي درجة الماجستير في الجراحة العامة

#### مقدمة من:

الطبیب/ مروه فرج عبد الله رزیق بکالوریوس الطب والجراحة

### تحت إشراف

أ.د. عادل عبد العزيز عويضة أستــاد الجراحة العامة كلية الطب - جامعة عين شمس

د. محمد علي ندا مدرس الجراحة العامة كلية الطب - جامعة عين شمس

> كلية الطب جامعة عين شمس 2013



# RECENT TRENDS IN MANAGEMENT OF Rectal CANCER

#### **Essay**

Submitted for partial fulfillment of master degree in General Surgery

#### By

Marwa Farag Abdulla Ruziek M.B.B.CH.

#### **Under Supervision of**

Prof. Dr. Adel Abdul-Aziz Ewada
Professor of general surgery
Faculty of medicine
Ain Shams University

Dr. Mohammed Ali Nada
Lecturer of general surgery
Faculty of medicine
Ain Shams University

Faculty of medicine
Ain Shams University
2013





Many thanks to *Allah*, who granted me the ability to perform this essay.

I would like to thank and express my deep gratitude to Prof. Dr. Adel Abdul-Aziz Ewada, Professor of general surgery, Faculty of medicine Ain Shams University as the senior supervisor for his help and great support during this work. I am indebted to him for fathering this research.

It is also a pleasure to express my deep gratitude to *Dr. Mohammed Ali Nada*, Lecturer of General Surgery, Faculty of medicine, Ain Shams University to him goes the credit of bringing this work to light; his continuous encouragement and generous help have promoted me to carry this research, I feel greatly indebted and grateful to him.

I am deeply indebted to my husband

Dr. Adel

For his constant patience, understanding and his constant Life-long support.

To my wonderful *parents* of whom I am extremely proud.

My love and gratitude to all.

## List of Contents

## **LIST OF CONTENTS**

	Titles	Page
List of	Abbreviations	i
List of	figures	iv
List of	tables	X
Introdu	ıction	1
Aim of the work		5
Review of literature		6
	Surgical Anatomy	6
	Pathophysiology	27
	Diagnosis	91
	New trends in the treatment	124
Summary		207
References		212
Arabic summary		

### LIST OF ABBREVIATIONS

**AAPC** : Attenuated Adenomatous Polyposis Coli.

**ACF** : Aberrant Crypt Foci.

**APC** : Adenomatous Polyposis Coli.

**APR** : Abdominoperineal Resection.

**CEA** : Carcinoebryonic Antigen.

**CRC** : Colorectal Cancer.

**CRM** : Circumferential Resection Margin.

**C.T** : Computed Tomography.

**DCC**: Deleted in Colon Cancer.

**DNA** : Deoxyribonucleic Acid.

**DPD** : Dihydropyrimidine Dehydrogenase.

**DRE** : Digital Rectal Examination.

**EGFR** : Epidermal Growth Factor Receptor.

**ERUS** : Endorectal Ultrasound.

**FAP** : Familial Adenomatous Polyposis.

**5-FU** : 5-Fluorouracil.

**FOBT**: Fecal Occult Blood Testing.

GI : Gastrointestinal.

**GR** : Grade of Regression.

**GPs** : General Practioners.

**HFAS** : Hereditary Flat Adenoma Syndrome.

**HNPCC**: Hereditary Nonpolyposis Colorectal Cancer.

**IVP** : Intravenous Pyelography.

**K-ras** : Kirsten rate sarcoma virus.

**LDH** : Lactate Dehydrogenase.

LE : Local Excision.

LS : Laparoscopic Surgery.

**LOH** : Loss of Heterozygosity.

**MMR** : Mismatch Repair.

**MRI** : Magnetic Resonance Imaging.

**MSI** : Microsatellite Instability.

**PET** : Positron Emission Tomography.

**PET-FDG**: Positron Emission Tomography-fluorine-18

deoxyglucose CT, compuated tomography.

**RER** : Replication Error Pathway.

**RT** : Radiation Therapy.

**TEMS**: Transanal Endoscopic Microsurgery.

**TGF-F**: Transforming Growth Factor-b.

**TME**: Total Mesorectal Excision.

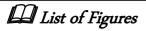
**TP** : Thymidine Phosphorylase.

**TS**: Thymidylate Synthase.

V1 : Microscopic Venous Invasion.

**VEGF**: Vascular Endothelial Growth Factor.

**WBC**: White Blood Count.



## **LIST OF FIGURES**

Figure	Titles	Page
1.	Rectum in Situ	7
2.	(A) Puborectalis. (B) External and internal anal sphincter	9
3.	Right half of hemisected Male pelvis	13
4.	Right half of hemisected Female pelvis	14
5.	Arterial supply of the Rectum. (A) Anterior view (B) Posterior view	18
6.	Venous drainage of the colon and rectum	20
7.	(A) Lymphatic drainage of the rectum and (B) anal canal	22
8.	Nerve supply of the rectum and anal canal	24
9.	Nerve supply of the Rectum and anal canal	25
10.	Haggitt's clacification for colorectal carcinomas arising in adenomas	34
11.	Tubular adenoma	40
12.	Villous adenoma	41

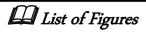


Figure	Titles	Page
13.	Tubulovillous adenoma; mixture of tubular and villous glands	41
14.	Relationship between adenoma size and frequency of dysplasia	42
15.	Plaque-like serrated adenoma in transverse colon	46
16.	Juvenile or retention polyp	48
17.	Peutz-Jeghers polyp	49
18.	Hyperplastic polyp	51
19.	Numerous small adenomatous polyps of the colon and rectum in a patient with familial adenomatous polyposis	54
20.	A genetic model for the adenoma-carcinoma sequence	58
21.	Environmental factors that may contribute to altering colonic mucosa to produce a field effect that precedes initiation of neoplasia	61
22.	Molecular pathway to colorectal carcinoma	62
23.	LOH pathway to colorectal carcinoma	63
24.	Genetic alterations often occur according to a preferred sequence	65

## List of Figures

Figure	Titles	Page
25.	The distribution of neoplastic lesions within the colon is depicted by percentages within	
	the colonic diagram	66
26.	General summary of the genetic counseling and testing process	69
27.	Macroscopic features of an ulcerated adenocarcinoma	70
28.	Macroscopic appearance of a polypoid adenocarcinoma	71
29.	Macroscopic features of an annular carcinoma.	72
30.	Macroscopic appearance of an infiltrating adenocarcinoma	73
31.	Microscopic appearance of a well-differentiated adenocarcinoma with well-developed glands	75
32.	Microscopic appearance of a moderately differentiated adenocarcinoma with gland formation that is less well defined	75
33.	Microscopic features of a poorly different- iated adenocarcinoma with pleomorphic cells and little recognizable gland formation	76

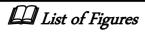


Figure	Titles	Page
34.	Microscopic features of a mucin-producing adenocarcinoma with abundant extracellular	
	mucin	77
35.	Depressed type of colorectal carcinoma	78
36.	Normal endoscopic image after indigo carmine spraying	<b>79</b>
37.	Pathogenesis of metastases from colorectal carcinoma	80
38.	Macroscopic appearance of anal implantation from a proximally located adenocarcinoma of the descending colon	81
39.	The variable endoscopic appearance of rectal cancer. (a) A large, ulcerated friable mass in the rectum without obstruction. (b) A circumferential, partially obstructing mass with central ulceration	95
40.	Flexible video sigmoidoscope (60 cm)	96
41.	N-shaped configuration of colonoscope passed through the left colon	97
42.	Double contrast barium enema showing carcinoma of sigmoid colon	100

## List of Figures

Figure	Titles	Page
43.	Ultrasound image of the liver	102
44.	<ul><li>(A) Five ultrasonographic layers of rectum.</li><li>(B) Carcinoma of rectum. (C) Carcinoma of rectum with regional lymph node involvement.</li></ul>	103
45.	Computed tomography scan of the liver	105
46.	(1 A&B): 3D and 2D tagged, uncleansed images of CT colonography study. (2 A&B): 3D and 2D tagged electronically cleansed images of CT colonography study	106
47.	(A) PET transverse and sagittal. (B) The lesion visualized by PET	108
48.	Bleeding in the ascending colon after colonoscopic polypectomy. (A) Superior mesenteric arteriography showing bleeding. (B) Bleeding stopped after vasopressin drip	109
49.	Three levels of Rectum	130
50.	(A) Comparison of amount of tissue excised with low anterior resection (B) and with abdominoperineal resection	133
51.	Posterior dissection of the rectum	145

## List of Figures

Figure	Titles	Page
52.	Low anterior resection. (A) Incision selection.	
	(B) Intersigmoid fossa. (C) Mobilization of	
	sigmoid colon. (D) T-shaped incision. (E)	
	Ligation of inferior mesenteric vessels distal	
	to left colic artery. (F) Ligation of inferior	
	mesenteric vessels at origin. (G) Identification	
	of presacral nerve	143
53.	Lateral dissection of the rectum	147
54.	Anastmosis with circular stapler	178
55.	Perineal portion of abdominoperineal resection for synchronous operation. (A) Elliptical incision. (B) Exposure with spring retractors. (C) Anterior deep dissection posterior to transverse perinei muscles. (D) Division of levator ani muscles. (E) Delivery of rectum into perineal wound. (F) Closure of perineum	153
56.	Hand-sutured coloanal anastomosis for colonic J pouch	155
57.	[A] Ligation of inferior mesenteric artery [B] Dissection of the rectum in the pelvis	160
58.	Laparoscopic stapled anastomosis	160



Figure	Titles	Page
59.	Hidden colostomy	168
60.	Perineal recurrence with ulcerating masses and numerous metastatic nodules along vulva	
	and groin	192